Illustrated
Guide
Botanic Gardens
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Buitenzorg

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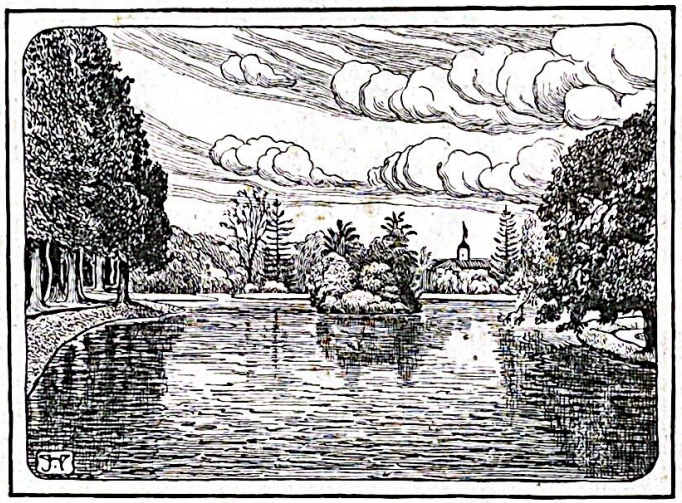
GUIDE TO THE BOTANIC GARDENS, BUITENZORG.

BY
DR. J. J. SMITH.

Illustrated from Photographs
taken by J. W. HUIJSMANS.



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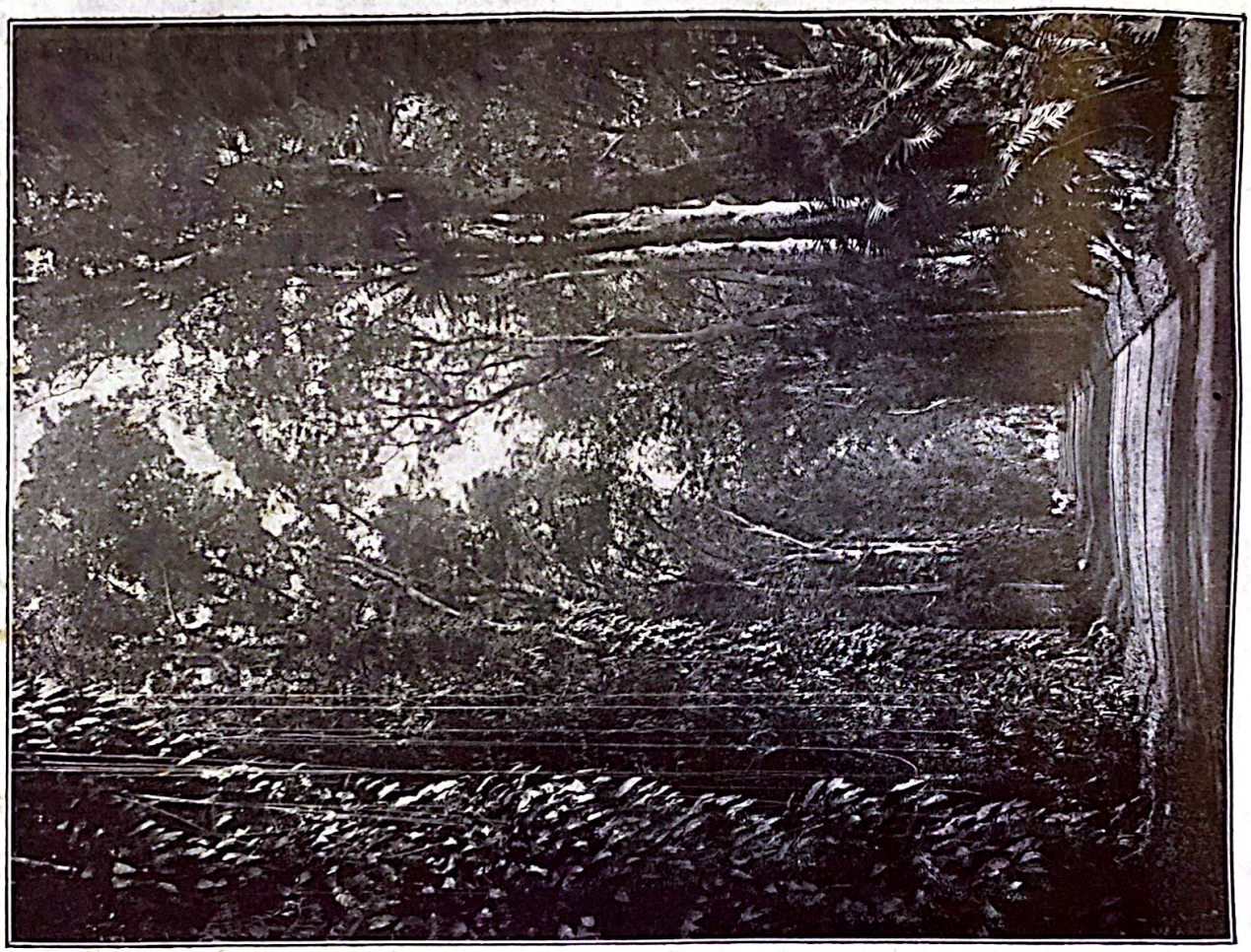


CANARIAN AVENUE.

THE BOTANICAL GARDEN AT BUITENZORG.

A SHORT ACCOUNT.

The botanical garden at Buitenzorg, which until 1904 officially bore the name of 's Lands Plantentuin (Government botanical gardens), and is still commonly so called, was founded in 1817 in compliance with an order of the Dutch government by C. G. E. REINWARDT, formerly a professor in Amsterdam. REINWARDT, after remaining for about 5 years in the Indies, was succeeded as director of 's Lands Plantentuin by Dr. C. L. BLUME. Although this savant had already returned to the Netherlands in 1826, he still found the opportunity, it is to be said by making use of manuscripts left behind bij the two young botanists, H. KUHL and J. C. VAN HASSELT, to describe a very great number of new species of plants, and moreover compiled the first catalogue of the garden, in which he already described 912 species.

In the period following the departure of BLUME (1826 to 1868) the regular development of the garden was made difficult by all sorts of retrenchments, as for instance the non-filling-up the post of director. Still much important work was done during this time, of which the chief was the classification of the plants according to their natural affinities, from the carrying out of which system the garden still derives a part of its importance. Then several little gardens were laid out at different altitudes on Mount Gede for such plants as could not stand the warm climate of Buitenzorg, of which gardens at present only that of Tjibodas lying at 1450 metres above the sea level still exists. The names of those who come into prominence at this time are J. E. TEYSMANN, J. K. HASSKARL, and S. BINNENDIJK.

In 1868 a director of 's Lands Plantentuin was again appointed, viz. Dr. R. C. SCHEFFER, and a complete reorganization of the arrangements took place, by which further prosperity was assured.

Through SCHEFFER, by the laying out of the economic garden at Tjikeumeuh, and the establishment of an agricultural school, the first departure was made in the direction which was eventually to lead to the present Department of Agriculture. SCHEFFER died in 1880, and was succeeded by Dr. M. TREUB, a man of exceptional scientific distinction, who moreover had the command of similar talent for organization, and great energy coupled with corresponding skill. The progress made by 's Lands Plantentuin under his direction was indeed astonishing. Not only were the existing institutions such as the botanical garden proper, herbarium, studio for photographic and other reproduction, library etc., enlarged, but, partly with pecuniary assistance from private individuals, a number of new laboratories, experimental stations and museums were built, wherein investigations concerning all branches of natural science, of special importance to Indian agriculture, take place. Moreover teaching institutions etc. were added to the institute. The so called forreigners laboratory deserves special notice. It is arranged according to the newest demands of science and, abundantly provided with all the necessaries, is always at the free disposal of foreign naturalists.

Thus 's Lands Plantentuin, instead of a simple botanical garden, gradually became a scientific centre of which the old botanical garden was the nucleus. Only one more step was needed to bring forth from this arrangement, together with the other branches of official service coming into notice for it, the Department of Agriculture. At its estabishment in 1905 Professor Dr. M. TREUB was made first director.

The botanical garden proper forms at present one of the divisions of the Department.

ARRANGEMENT OF THE BOTANICAL GARDEN.

The botanical garden is situated at an elevation of 265 metres above the sea level. In accordance with the very misty and warm climate the plant-growth is exceptionnally luxuriant. It covers an area of 58 hectares, of which the greater part is planted with arborescent growths, which take a pre-

PRINCIPAL GATE.

ponderating place in tropical flora. A special part of the garden is reserved for the climbing plants from a practical point of view. Furthermore special places are laid out for shrubs, herbs, water-plants, ferns, orchids, Bromeliaceae and shade-loving growths, while in conclusion the nurseries deserve mention along with a few conservatories for foliage plants and orchids.

In order to easily find the plants represented in the garden they are all numbered, while the sections in which they are planted, and which are mostly bounded by the paths, are indicated by Roman numbers and letters.

It is an accepted rule that the larger plants, principally trees and shrubs, should be represented by two examples; in this way the loss of a species is practically obviated. The second example bears the same number as the first but with the addition of A. Moreover all species are provided with labels, while there are name-posts painted red for plants which for some reason or other are outside the section destined for their natural family.

A WALK THROUGH THE GARDEN.

The best times for a walk in the botanical garden are from 6 to 9 A.M., and 4 to 6 P.M., that is to say if the rain does not hinder it.

PHILODENDRON.

The garden is sufficiently shady to remain in until 11 o'clock; but when the sun has once got high in the sky the tropical landscape loses much of its charm.

By following the path indicated in the accompanying map one is certain of seeing the most important growths. It is absolutely impossible to see all the plants named in one morning, one should therefore pay several visits.

The main entrance, which we shall choose as the starting point of our walk, is quite near to the office of the Agricultural Department, opposite the market, and close to the telephone office.

On entering one has a beautiful view of the Canarian avenue, so named after the trees called in Malay „kanari" with which it is planted. The edible seeds taste like almonds, and are used in the same way. The avenue planted by Teysmann derives much of its beauty from the climbers, which often completely cover the trunks. They are principally *Araceae*, among which one finds many species of *Philodendron* with often very decorative leaves, *Rhaphidophora*, *Syngonium*, *Scindapsus*, *Epipremnum*. Very interesting is *Pothos aurea*, a luxuriantly growing plant of the same order with large

incised green and yellow variegated leaves. As soon as their stems reach the tops of the trees they send out long limp pendant shoots resembling cords, and bearing only scale-like leaves, which so soon as they reach the ground take root and creep on until they reach another tree, and then adorned with green and yellow leaves work upwards again by means of air-roots. If they are allowed to grow they take possession of tree after tree.

We also find here some gigantic examples of *Freycinetia strobilacea*, (order *Pandanaceae*). In the flowering season these plants are decorated with a bloomlike inflorescence consisting of 3 rows of close compacted large brilliant rose-coloured bracts in which the real flowers are found. The innermost of these bracts are fleshy and very sweet, and provide a delicacy for a small kind of bat, which in thus enjoying itself is the means of conveying the pollen from the male to the pistil of the female flowers. The *Fagraea littoralis* is also very pretty; some beautiful specimens of which may be seen farther on in the avenue, covered from time to time with fragrant white flowers.

We do not continue to follow the avenue of Canariums, but turn in between section I A, for the most part planted with species of *Pterocarpus*, whose dried dark red sap known as „kino" is used as a medicament and as a colouring matter, and section III A, where a monument dedicated to the memory of Lady Raffles, the wife of the English Governor-General Raffles, is to be found on the right. In section I I there are many fine blooming *Leguminosae*. At the corner (I I 1) we see *Saraca declinata* with large golden yellow flower-bunches and mauve pods; a little farther on flourishes the *Amherstia nobilis* (I I 4), indigenous to Britsch India, to which our attention is drawn by its pendant racemes of large strangely shaped bright red flowers, and not less by its reddish-brown young leaf-shoots which hang in limp bunches. The *Maniltoa gemmipara* from New-Guinea (I I 33) has a similar kind of young shoots, but of a whitish tint. Among the various *Browneas* (I I 5, I I 8, I I 35, I I 51), whose brilliant red globular flower-heads remind one of the *Rhododendron*, the young leaves are variegated brown and green. Coloured young leaf-shoots occur very often in the tropics, as one has repeated opportunity of observing in the garden.

In the opposite section III B a number of *Aglaias* are to be found with small but very fragrant flowers, some of them fruit-trees, among which are the „duku", *Lansium domesticum* (III B 4, 5, 6), and „kechapi", *Sandoricum indicum* (III B 56), whose fruits are indeed less attractive to the European palate. In sections III A, III C, III D and partly in III E we find the order *Meliaceae* represented.

Main way.

The *Cassias* are present in the garden in great variety. Most of them have yellow blossoms, although other colours are by no means wanting. The flowers in I J are very lovely, among others *Cassia calliantha* (I J 6) with golden yellow, and *C. moschata* (I J 11) with brownish yellow blossoms.

In the middle of section I L (I L 27) stands a large tree, the American *Schizolobium excelsum*, which merits attention, as towards the time of florence it sheds its finely divided leaves and afterwards clothes itself with tufts of brilliant yellow blossom. Especially when viewed at some distance its broad yellow crown reposing against the dark green foliage of another native of America, the wide branched *Pithecolobium Saman* (I D 36), and boldly contrasting as it does with the clear blue sky gives a matchless impression.

At the corner of section I L (I L 1) the *Cassia javanica* when in bloom attracts our attention by its profusion of large fragrant pink flowers resembling apple-blossom, while close by is found the *Cassia fistula* (I L 25) whose fruit is known as „pipe-cassia", and whose pendant yellow clusters of flowers simulate those of the *Cytisus Laburnum*.

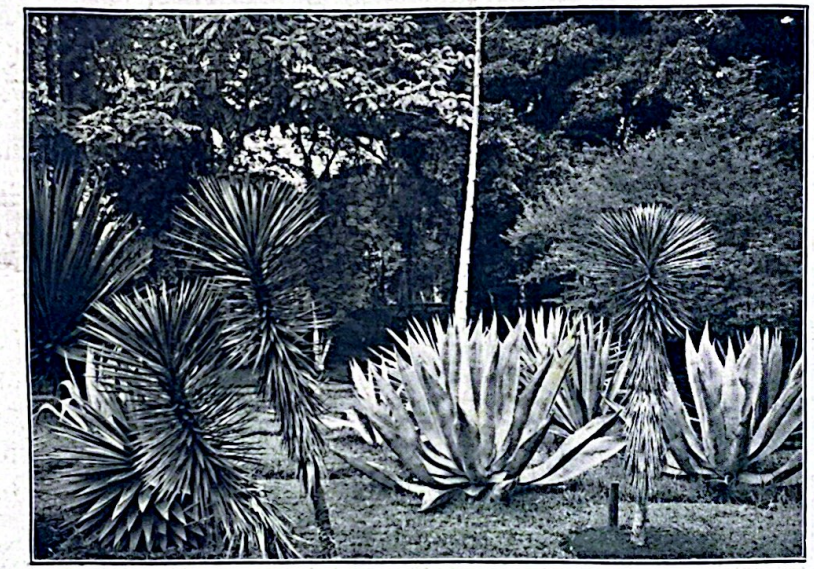
All the sections marked with a Roman I harbour members of the very large and important order of *Leguminosae*. In the section a little farther from the road the various *Cynometras* (I F and I I) are to be seen, among them *C. cauliflora*, „namnam", the acid fruits of which are very nice stewed, the „tamarind", *Tamarindus indica* (I E 7), *Albizzias* including *A. falcata* (I B 60) which is much used as a shade-tree in coffee-plantations, *Myroxylon peruiferum* (I B 21), which yields „Peruvian balsam", stately *Parkias* (I B 51, 53) among which *P. speciosa*, the „petai", whose foetid seeds the natives enjoy eating, as they also do those of *Pithecolobium lobatum*, „jengkol" (I B 39), which are really not quite harmless as food.

We turn now into the path between sections I L and I H. On our right we soon meet with a specimen of *Strychnos nux vomica (I C 6)* which is provided with a red label; the fruits of this tree, „St. Ignatius beans", contain strychnine, one of the most powerful poisons.

Section *II* A finds a home for a collection of *Agaves* and *Fourcroyas*, both of which belong to the fibre yielding plants, the latter when bearing flowers on their stalks over ten metres high are very beautiful, farther on one finds the *Yuccas* with their large pure white panicled flowers, *Dra-*

caenas and *Cordylines*, many of which are cultivated in Europe as ornamental plants, and besides these varieties of *Pandanus*.

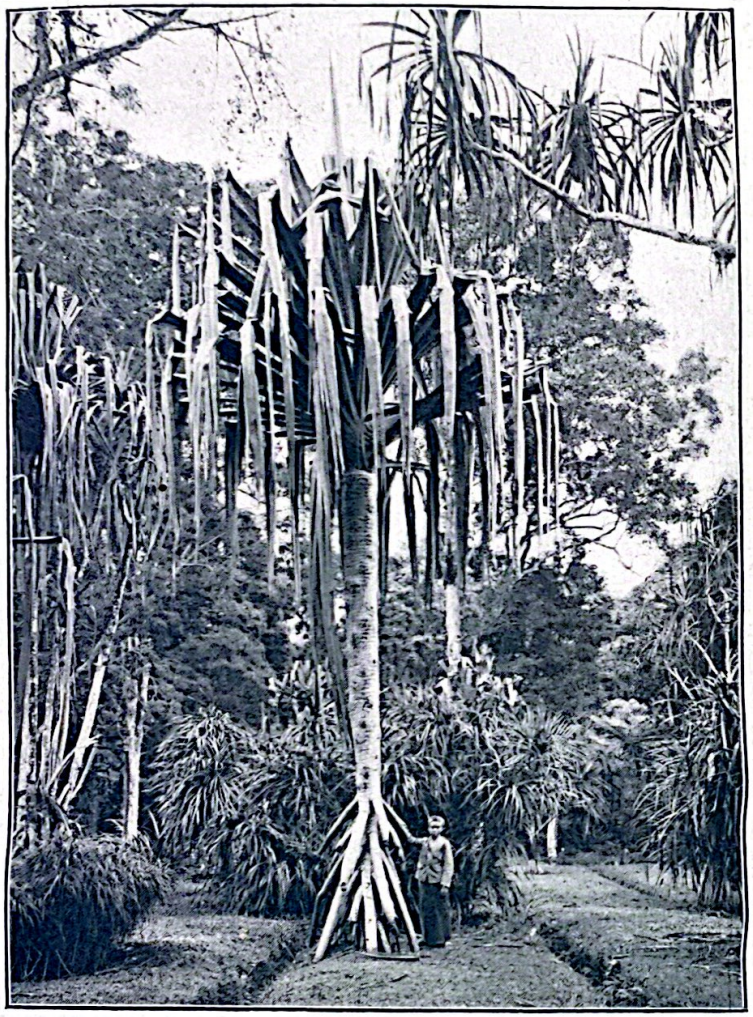
Proceeding straight to the right we come to the village of the native gardenhands (25) by the Tjiliwong. We however continue our course by sections II C and II D planted with *Dracaena*, *Cordyline*, and *Pandanus*. The latter especially are not backward in attracting by their weird appearance, by their thick air-roots, and the long spirally arranged leaves, which latter are used for weaving and those of one species being chopped as a perfume.



AGAVE AND YUCCA.

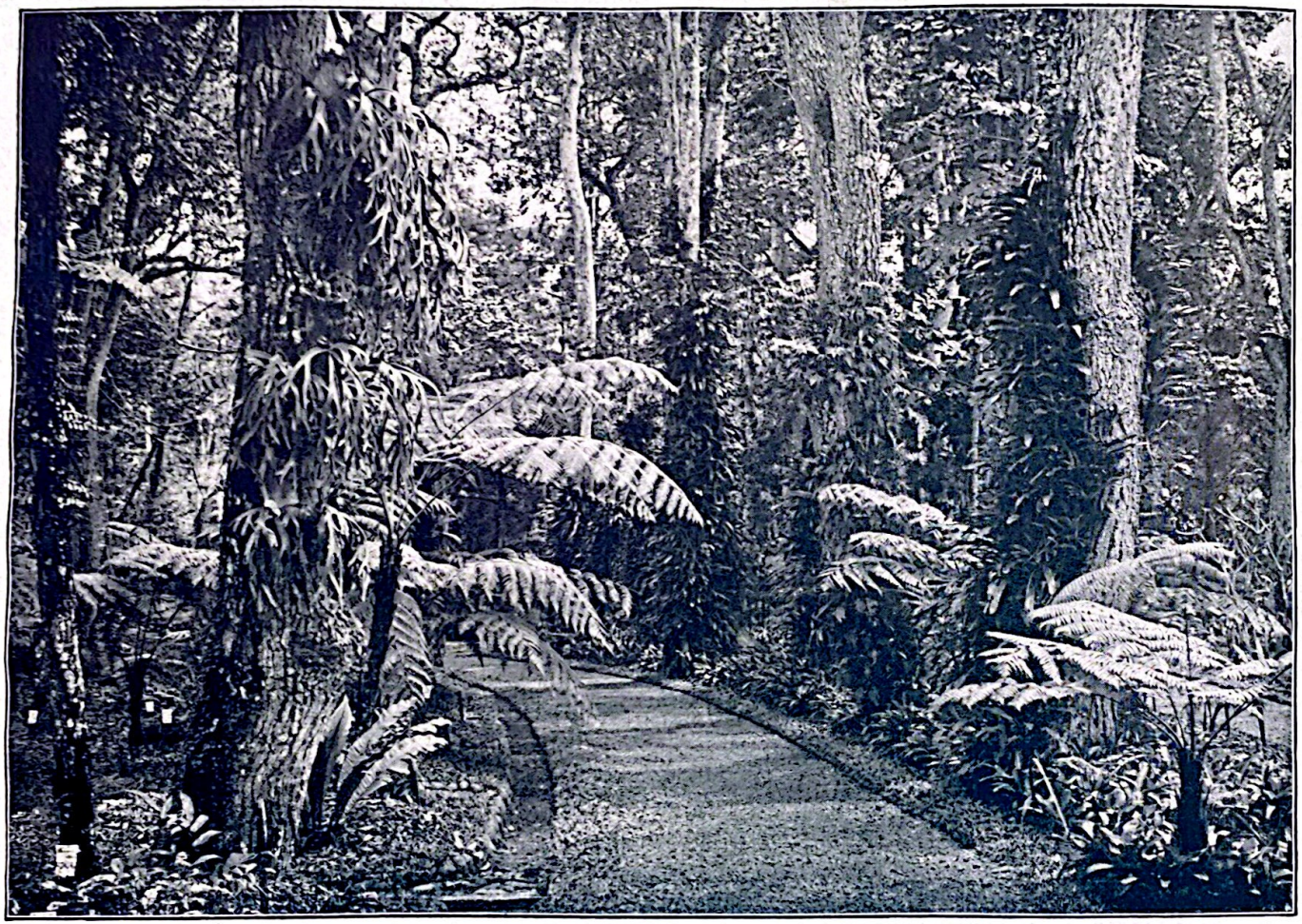
We soon come out again on the main path, along which we must retrace our steps for a short distance. In section I K we find by the wayside a couple of *Ormosia macrodisca* (I K 36), which shed all their leaves once a year, and then quickly recover themselves with pretty new bronze-brown foliage which each day becomes greener. At this time the trees are singularly pretty. On the opposite side there is a couple of very tall *Eucalyptus alba* (II H 4).

As we now stroll into the short path between sections II H and III G we see at the end of it a singularly beautifully developed tree, *Xantho-*



A Young Pandanus.

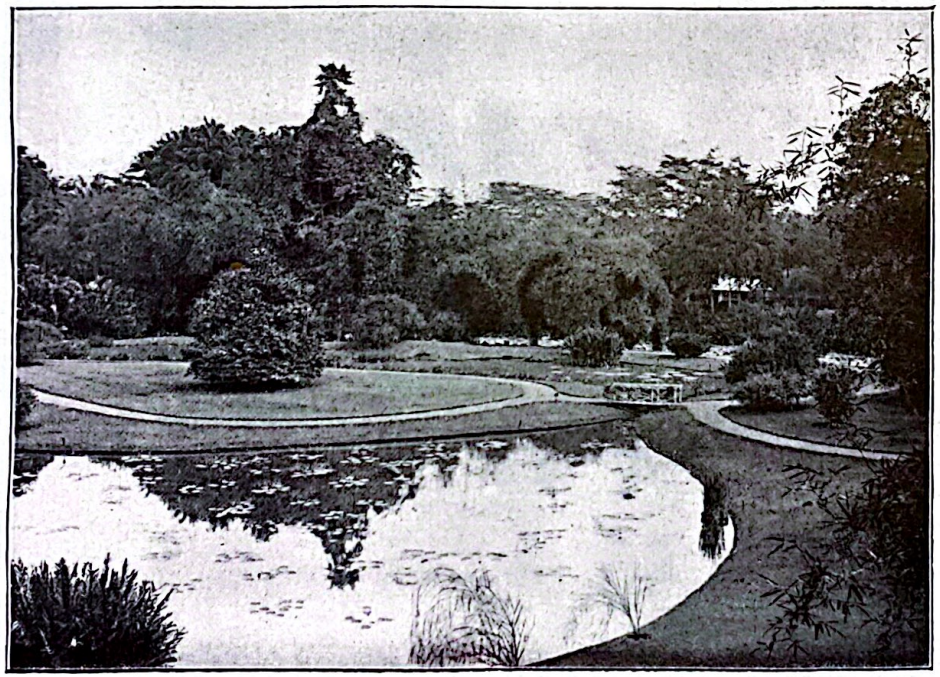
Pandanus.



FERNS AND BROMELIACEAE.

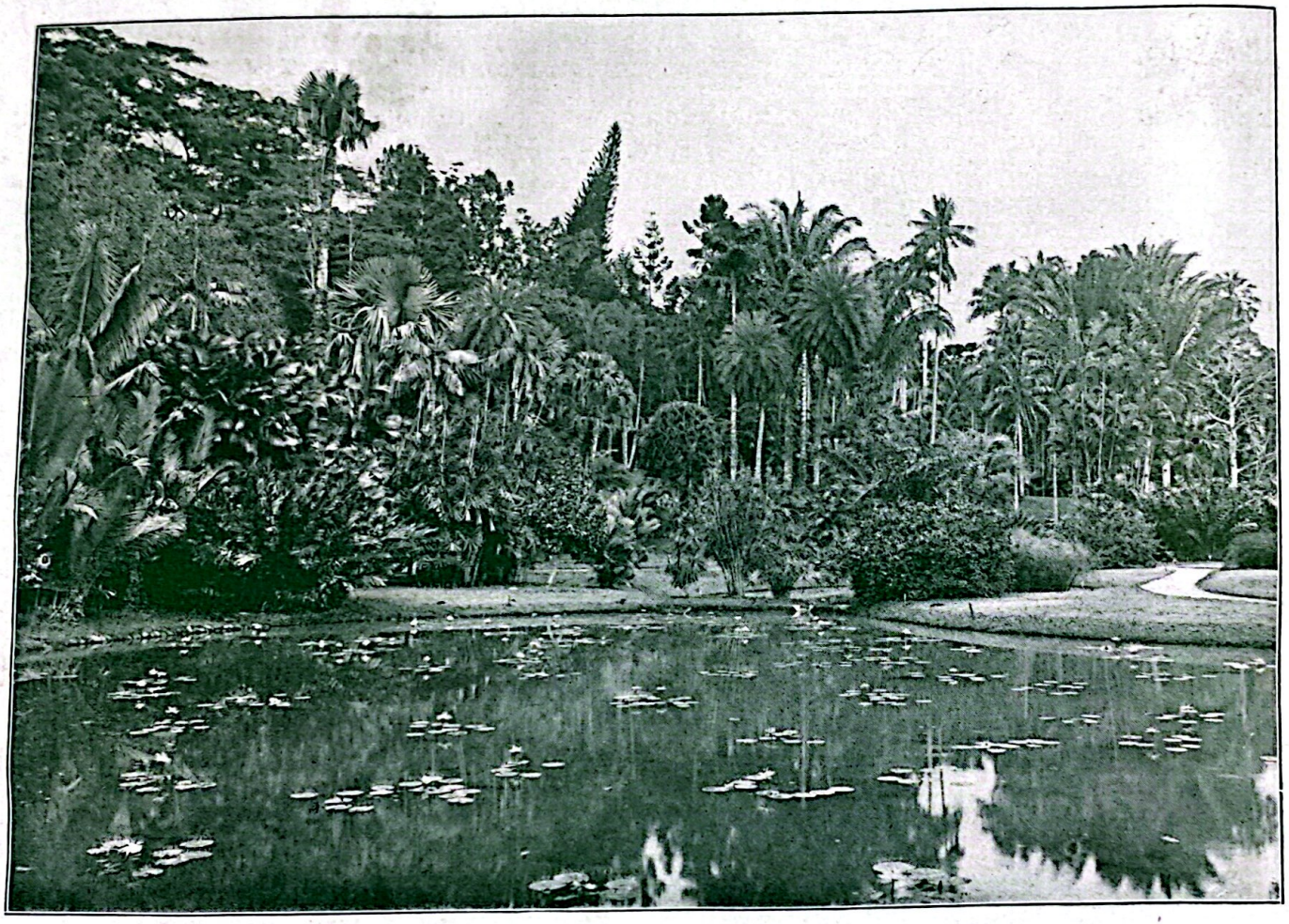
bloom. It goes without saying that the small-flowering varieties predominate in a botanical garden but beautifully-flowering representatives of the order will not be sought for there in vain. The richest genera represented are *Dendrobium*, *Bulbophyllum*, *Eria*, *Coelogyne*, *Cymbidium*, etc., of which many truly beautiful specimens are to be found as well as of the „giantic orchid", *Grammatophyllum speciosum*, very appropriately called by the natives „anggrek tebu" (sugar-cane orchid), and also of the *Arachnanthe Lowii*.

In the same neighbourhood are included the *Bromeliaceae*, to which among others belong the „ananas" (pineapples) etc. (II H, II L, II N). Although mostly belonging to the epiphytes these beautifully blossoming growths flourish excellently in the shade under the tree-ferns in the open ground. Some of them among which are *Aechmea fulgens* and its purple-leaved variety climb high into the trees.

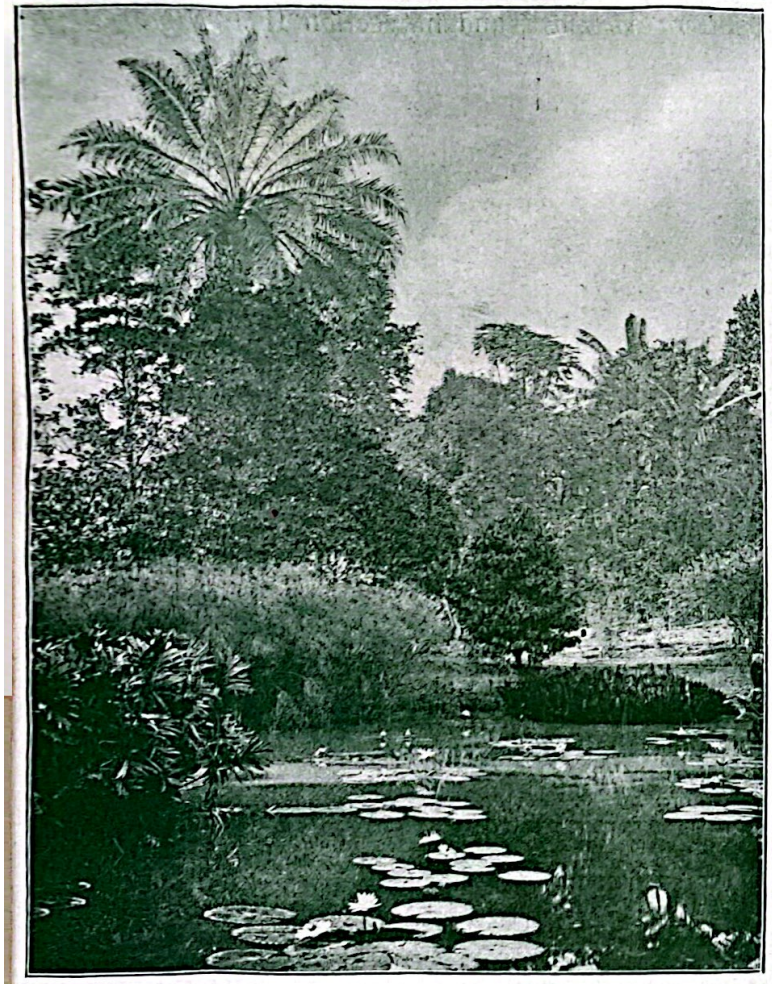


POND GARDEN.

Passing along the path opposite the summer-house in section II F, (from which one has a pleasing view of the ornamental water-sections lying in the hollow below), we leave the orchid-garden and strike up the path between sections II F and II E. At the corner of the former, a section situated on the slope and planted with palms, we observe a small weeping tree, *Gonocaryum fuscum* (II F 22), a type which is rare in the tropics. On the lower edge can be found fine examples of



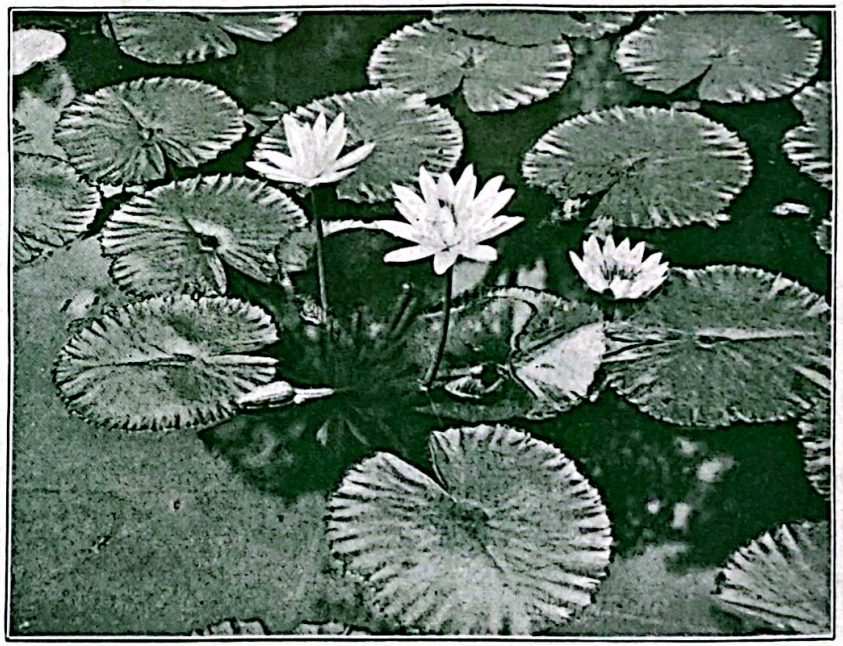
WATERPLANTS AND PALMS.



CORNER OF POND-GARDEN.

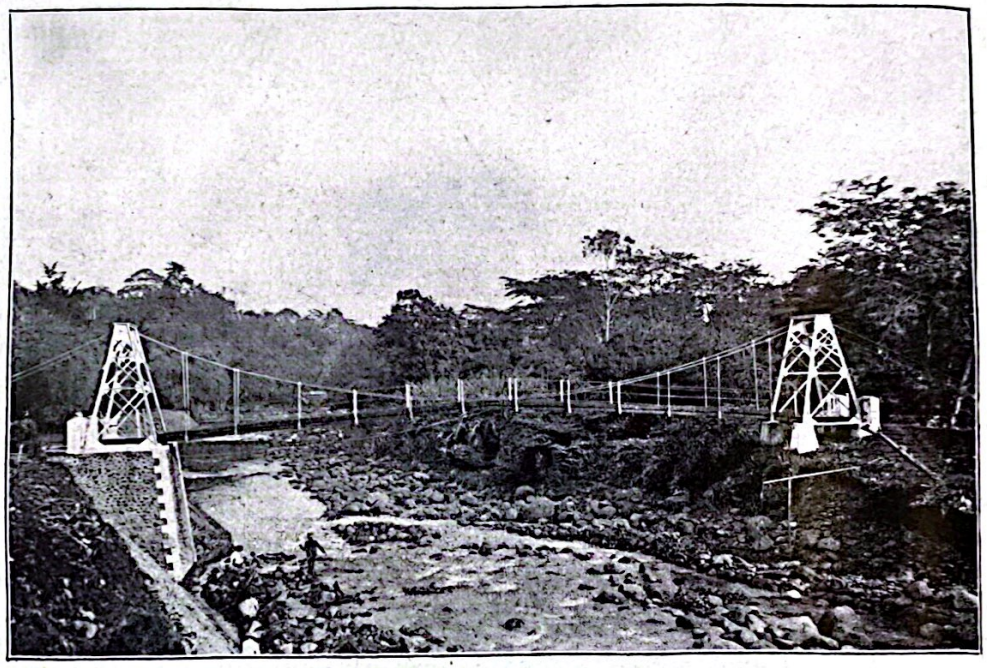
Phytelephas Poeppigii (II F 7), the seeds of which yield vegetable ivory.

In the pond-garden, which is reached by the taken path, a number of interesting plants grow in and near the water. So we find in the part turning towards the kampong some trees indigenous to the sea-coast, such as *Bruguiera*



NYMPHAEA.

erioptela, whose fruits germinate on the tree, *Sonneratia acida*, whose peculiar respiratory roots grow vertically upwards from the ground, *Lumnitzera racemosa*, and in section II J *Nipa fruticans* (II J 5), a stemless palm, while close by a fern, *Acrostichum aureum*, raises its robust fronds. Farther on there are beautifully flowering *Nymphaeas*, *Nelumbo nucifera*, *Sagittarias*, *Eichhornia crassipes*, the American „waterpest", *Nuphar japonicum*, *Acorus Calamus*, the „calamus" also indigenous to Europe, and *Typha angustifolia*, „duikelaar", then *Salix pendula*, the „weeping willow", *Jussiaeas* with respiratory roots floating on the water, the „papyrusplant", *Cyperus Papyrus*, foliage plants such as *Lasia spinosa* and *Cyrtosperma Johnstoni* and many other.



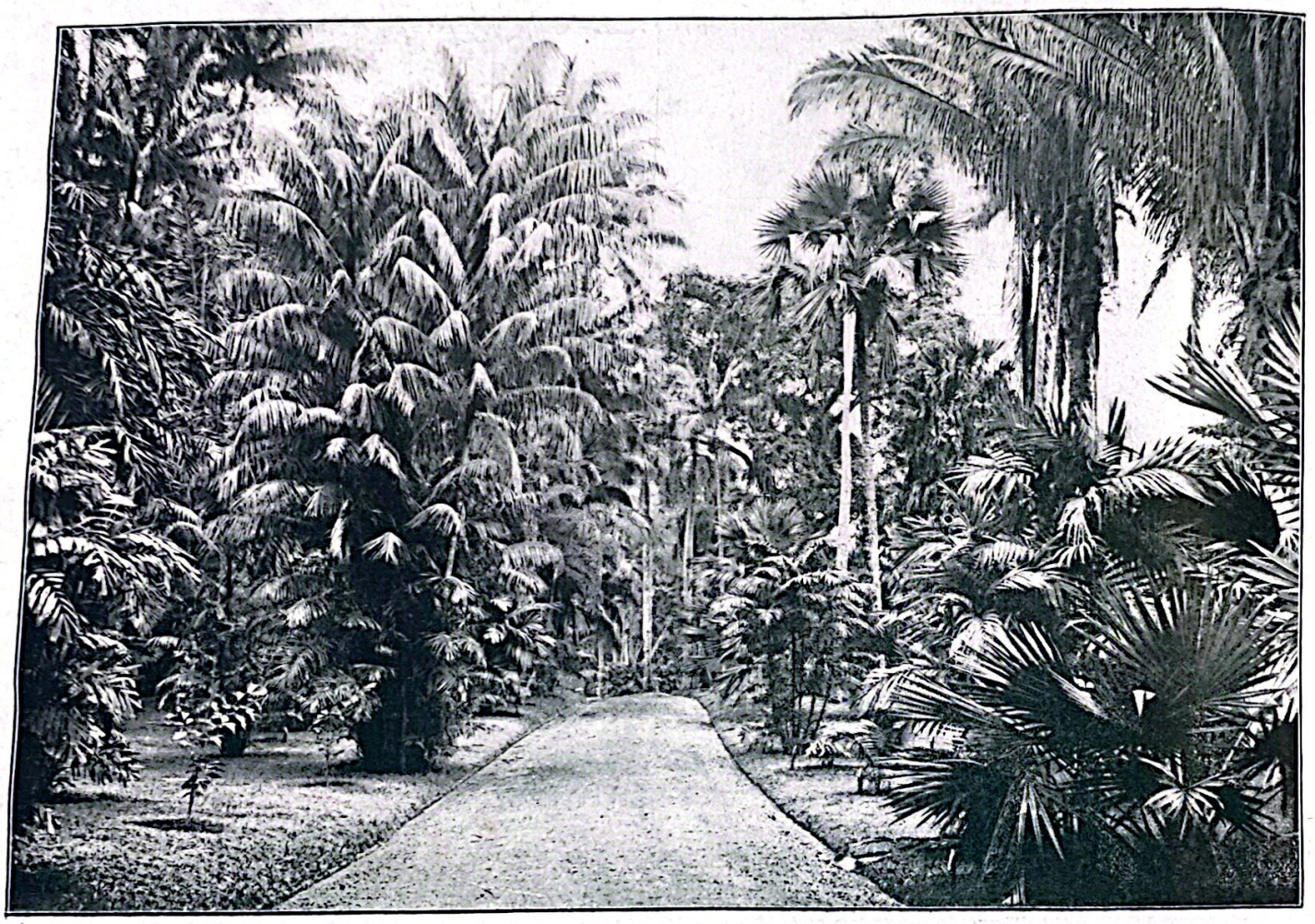
HANGING BRIDGE.

ARAUCARIAS

In section V G we find numerous *Zalacca edulis*, the „salak", a low-growing sturdy spiny species of palm, whose fruit is edible. To the same section belong the various *Carludovicas*, plants with elegant palmlike leaves, one variety of which, *C. palmata*, provides the material for panama-hats.

As we now ascend the fairly steep path between II G and V H we come out opposite section V F, which has been almost entirely reserved for the *Coniferae*. Various *Araucarias* grow very well here, but bear no fruit however. There stand in the middle of this section a few splendid specimens of *Agathis Dammara* (V F 81), whose narrow tops remind us of Lombardy poplars. On the other side of this section is a pair of true pine-trees viz. *Pinus Montezumae* (V F 86) from Mexico, very high trees with exceptionally long needles, and *Pinus Merkusii* (V F 2) from Sumatra. One also finds in this section the botanically interesting *Gnetum Gnemon* (V F 26), the „maninjo" of the natives, whose cooked fruit is eatable.

We now follow the main way beside sections V H, V K, V I and V J, where we find ourselves in the midst of the palms

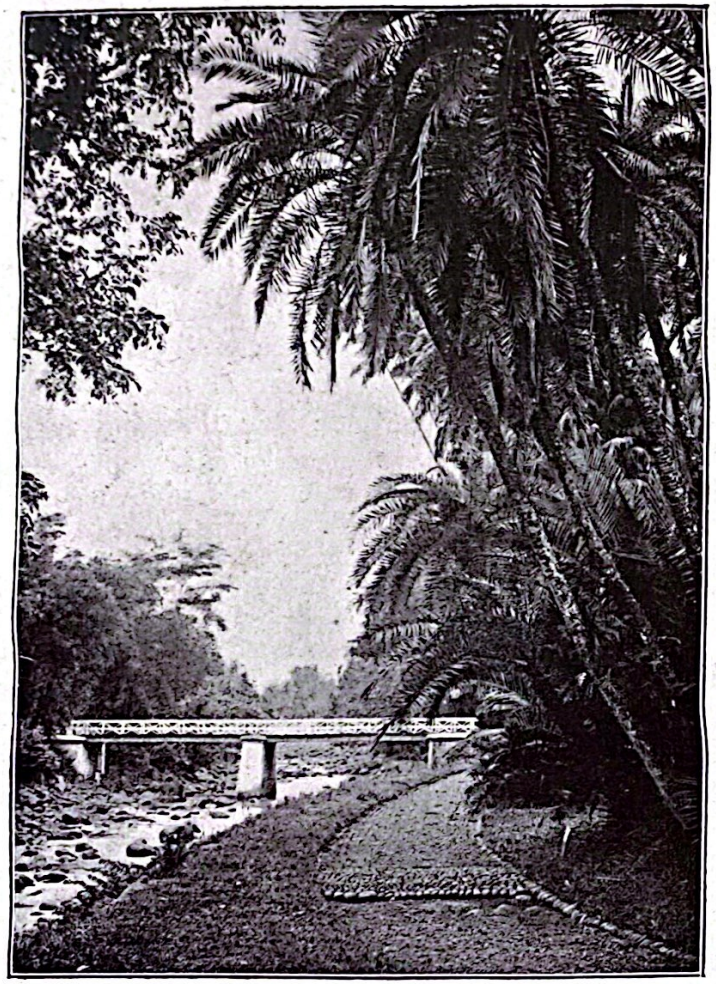


MAIN WAY THROUGH PALM-SECTION

ANOTHER VIEW IN THE PALMSECTION.

for which Buitenzorg is so renowned. It is impracticable to mention all the species worthy of recording. To the most attractive to the eye belong the *Latanias* (V H 12, 14, 19) with firm bluish fan-shaped leaves, *Scheeleas* (V K 29, 38, V J 12), which are very impressive on account of their very long upright curved leaves, the strong *Oncosperma horrida* (V K 93), whose long prickly stams form large fascicles, the elegant *Phoenix* and the fine *Acoeloraphe Wrightii* (V K 67), the gigantic *Coryphas* (II F 40, 58, V K 74) and *Borassus flabellifer*, „the „lontar" (V K 118), and the lowly though wide-spreading *Rhapis flabelliformis* (V K 40, 43, 50), the *Caryota* (V K 10, 12, 16, 21, etc.) with bipinnate leaves, *Livistonas* „sadang", which in a young state are valuable in Europe as well as here as decorative plants for rooms, passages, verandahs, and many other places.

Past section V J we turn to the right passing over the bridge to the ground situated on the opposite bank of the Tjiliwong. One has pleasing views from the bridge, which certainly are not so pretty as formerly; through repeated „bandjirs" (inundations) the banks have crumbled so that embanking has become necessary.



ALONG THE TJILIWONG.

In sections XVI F, XVI G and XVI H are planted the *Malvaceae* (with the *Bombaceae*). As these plants only a comparatively short time ago have been transplanted from another part of the garden they are not yet full grown. Various interesting plants are met with among them, for instance a great number of varieties of *Hibiscus rosa sinensis*, „kembang sepatu", which is under general cultivation in the Indies for its flowers; *H. tiliaceus* (XVI G 5, 6, 10, etc.) and *H. similis* (XVI G 7), known as „waru", with a wood, which is servicable for many purposes; *Durio zibethinus*, which is known as the „durian" and produces a by no means pleasant smelling fruit, and its relative from Borneo *Lahia kutejensis* (XVI H 3), and *Eriodendron pentandrum* (XVI H 20), from which „kapok" is derived.

We now proceed to XV I where we find a large assortment of the *Musa*, for example *M. sapientum*, with delicious fruits in great variety known as „pisang" (banana), the brilliant red-flowering *M. coccinea* (XV I 46), *Ravenala madagascariensis* XV I 35), the „travellers-tree", and the other species of this genus *R. guyanensis* (XV I 34),

with terminal inflorescens; near by is a collection of *Heliconias*, which are much valued as decorative plants.

We pass now along the little nursery at the corner of section XVI G below, and come to the so called shrubbery (XV J), which is divided into plots by numerous paths. Shrubs which formerly had only a puny existence under the shade of the trees, have been transplanted here with much advantage and very good results. A knowledge of many interesting plants may be gained there now.

Beginning at the turning towards the nursery we see in A XXXIII and XXXII a number of pretty-flowering *Clerodendrons*, some of which are also to be found in the herbaceous garden. In B XXXI one sees *Jacaranda mimosifolia* (B XXXII), which when in bloom attracts attention from a distance by its abundance of violet flowers. Midway stands *Solanum grandiflorum* (A XXX 7), a pretty little tree whose large violet flowers very closely resemble those of the potato, to which it is indeed nearly related. In a section farther on we find *Moringa pterygosperma* (A XXIX 3), „kelor", many parts of which supply vegetables and medicines. *Helicteres Isora* (B XXVII 6) is remarkable because its flowers, which are at first dark blue become later brick-red. Section B XXVI contains various medicinal plants viz. the very bitter *Brucea sumatrana* (B XXVI 6), which provides the „Makassar pitjes", *Guajacum officinale* (B XXVI 5), the wood of which is known as „guayak" or „pock-wood", and the pretty-flowering *Quassia amara* (B XXVI 4), the wood af which is also medicinal. The slender tree which stands at the end of A XXVI is *Eucalyptus maculata* var. *citriodora*, whose lemon-scented leaves are of quite a different shape on the young plants from those found on the older ones, a phenomenon which is also observed in other species belonging to the same genus. There are a number of finely blooming *Brunfelsias* in A XXV and XXIV. It has been proved by the specimens in A XXV 5 and B XXIV 8 that the „peach", *Prunus persica*, grows here well, and blooms regularly, yet the fruit does not develope as it should. There are good specimens of the very thorny *Gleditschia ferox* (A XXIV 3), while in section A XXIII 4 *Butea frondosa* is planted, the sap yields a variety of kino, its bright coloured flowers are however seldom if ever developed in Buitenzorg. Among other beautiful and fragrant flowers the following are grown here and in free cultivation, *Rondeletia odorata* (B XXIII 6), *Nyctanthes arbor tristis* (B XXII 3), whose sweet-scented white and

orange coloured flowers may be bought in the markets, and *Ligustrum chinense* (B XXI 8) known under the name of „schildersverdriet" (the painters despair). *Scaevola Koenigii* (A XVIII 3 and A XVII 5) is a shrub very commonly found on the coast, whose spongy pith, which reminds us of the European elder is used, for varied requirements. Sections B XVIII, B XVII, B XVI and B XV are mostly planted with *Malvaceae*; we find here especially some beautiful varieties of the *Abutilon* and *Hibiscus*. *Malphighia coccigera* (B XIV 6) is a nice richly flowering small shrub with small leaves resembling holly. The Japanese „lacquer-tree", *Myrica cerifera* (B XIV 6), grows very well here, as also does the neighbouring „Japanese pear" (B XIV 4), which certainly blooms yet produces no fruit. In B XII there is a whole row of *Pereskias*, climbing prickly *Cactaceae* with normally developed leaves; these plants are frequently used in Europe for grafting the lovely blooming *Epiphyllum*. The *Lagerstroemia indica* (B X 4, 3, 2) blossoms beautifully although the Buitenzorg climate is not the best suited for it. *Lawsonia alba* (B IX 6) and the red variety standing near are finely flowering shrubs. Close by grow some shrubs with the thin long green stalks of a parasite, *Cassytha filiformis* (B VIII 1), which much resembles the „tangle weed", although it belongs to the *Lauraceae*. A few *Acacias* stand together in A VII, among them *A. Farnesiana* (A VII 1), „nagasari", well known to the natives for its fragrant blossoms, the other is *A. spadicigera* (A VII 4), the „bull's-horn shrub", remarkable for its thorns resembling ox-horns. „Croton oil" is obtained from the seeds of *Croton Tiglium*, which is to be found in section A VI 2. In A IV and A III we meet with a number of *Plumieras*, „kamboja", with thick branches and large flowers; these plants are universally found on native graves. In the latter section (A I) grow a few varieties of *Nerium odorum*, the „oleander" well known in Europe.

The shrubbery is bordered by the no less important herbaceous garden (XV K), that is to say the area set apart for herbaceous plants and small shrubs. Besides the numerous flowering annuals, which are also cultivated in Europe, such as „pinks" and „balsams" and the *Helianthus*, *Zinnias*, *Rudbeckias*, *Arctotis*, *Tagetes*, *Coreopsis*, *Phlox Drummondii*, *Petunias*, *Cupheas*, *Verbenas*, etc. we find here numerous *Acanthaceae*, both with pretty flowers and coloured leaves, *Calotropis gigantea* (A X), the down on whose seed yields a sort of vegetable silk, *Aristolochias* (A XI) with their very charac-

teristic flowers, *Clematis* among others the exquisite C. *paniculata*, which is much sought after here for floral decorations, a number of *Ipomoeas* (B XI, XII, XIII) among which is „batatas", provided with edible tubers and, known for its hardiness, the *Bryophyllum calycinum* (A XIII). The *Compositae* are well represented; besides the seed-plants already mentioned one finds here among others *Chrysanthenum*, *Artemisia*, etc. A few varieties of *Rhododendron ledifolium* (B XVIII) grow very well, but although they bloom throughout the year are never covered with blossom as one is accustomed to see them in Europe. A little farther on (B XXI) we find some varieties of *Oxalis* and *Biophytum*, whose leaves are sensitive just as are those of some kinds of *Mimosae*, as for instance *Mimosa pudica*, the common „sensitive plant", *M. hamata* (A XXV), and *M. Spegazzinii* (A XXXI).

In A XXV we light on among the rest *Arachis hypogaea* „kachang tanah", *Dolichos Lablab*, „kachang kara kara", *Cajanus indicus*, „kachang iris", in A XXIX and A XXX species of *Phaseolus*, amongst them *Ph. lunatus*, „kachang mas", *Ph. radiatus*, „kachang idju" and *Psophocarpus tetragonolobus*, „jaät", in A XXXII *Voandzeia subterranea*, „kachang manila", the fruits or seeds of which plants are edible. To A XXVIII belong the species of „indigo", *Indigofera*, whose culture value as a crop is no longer great nowadays.

We see in the plot reserved for the *Labiatae* the variegated *Coleus* (B XXV etc.), „mint", *Mentha*, and *Ocimum basilicum* „selasih" (B XXIX), which as well as the „patchouly", *Pogostemon Patchouly* (B XXX) and many others are very aromatic. In B XXXI and B XXXII grow the pretty blooming *Salvias*, while plots B XXXIII—B XXXVIII are destined for the *Malvaceae*, among which, just as in the shrubbery, the *Abutilon* and *Hibiscus* varieties particularly attract attention. There is a luxuriantly growing shrub on the other side of the middle path in A XXXII, with pale green leaves and red fruits, this is *Erythroxylon novogranatense*, from which cocaine is derived as well as from the *E. Coca*, which is a few steps farther on. Some species of *Jasminum* produce the most fragrant flowers, among the rest *J. grandiflorum* and *J. Sambac*, often described as „melati", both species are in A XXXIV. *Sesamum indicum*, „wijen", section A XXXV, is quite a different kind of plant, from whose seeds oil is expressed. The *Rubiaceae*, the order to which „coffee" belongs, numbers various flowering shrubs; in A XL and A XLI one fiinds with others *Rondeletia*, *Pavetta*, *Ixora*, *Posoqueria*, *Exostemma*, the low-growing „Bengal coffee", *Coffea bengalensis* etc. The *Daturas* (B XLII), with large

OPUNTIA'S.

flowers often possessing a double corolla, belong to the plants which have an evil reputation in India as poisonous. With its profusion of blossoms *Russelia juncea* (A XLIII) suggests a fountain of fire-works. A few plots farther on one notices a row of *Clerodendrons*, a number of which we have already seen in the shrubbery. Specially remarkable is the extremely free-flowering *C. macrosiphon*, whose peculiar shaped blossoms or rather buds have given rise to its being called „vraagteeken" (note of interrogation). A collection of *Passifloras* (passion-flowers) in B XLIX is also interesting.

Just as the plants we have been viewing up to the present in the herbaceous garden all belong to the dicotyledons so those still remaining are all monocotyledons. Thus plots XLVII—LV are planted with the *Amaryllidaceae*, for the most part bulbous as *Hippeastrum*, *Crinum*, *Zephyranthes*, *Hymenocallis*, etc., including the smaller varieties of *Agave*. Opposite we find the useful but less attractive order of the „grasses" (B L—LXI). Pretty foliage plants are to be found in A LX, which are also planted by the natives for the sake of their edible rhizomes; there are varieties of *Alocasia* and *Colocasia*, which belong to the „arums". Among the *Liliaceae* we observe a collection of *Asparagus* (A LXIII) with their beautiful delicate green foliage, *Aloes* (A LXIV and A LXV), and *Gloriosas* with red and yellow flowers. In B LXII and B LXIII there is a number of *Sansevieras*, whose thick leaves yield a pretty fibre; we also find some ground-orchids in the last named plot. Some *Scitamineae* needing sun for their development have been planted in B LXIV—B LXVIII, many of which serve as spices or drugs.

The small-flowering *Cannas* in B LXIV illustrate clearly what great changes plants may undergo through careful cultivation. At B LXV one finds the various *Curcumas*, „kuning", at B LXVI *Kaempferias*, „kenchur", with its orchidlike blossoms, and at B LXVII the „arrow-root", *Maranta arundinacea*. Some species and varieties of „ananas" (pineapples) are to be found in plot B LXVIII, whilst in the last bed (B LXIX) some *Opuntias* flourish vigourously.

The remaining part of the herbaceous garden serves as an experimental garden, where amongst other things newly received seeds are tried in order to ascertain whether the plants are suited to the climate of Buitenzorg. Only when the result is favourable are they transplanted into their proper places in the collection.

CLIMBERS.

The remaining part of the island, which is formed by the two branches of the Tjiliwong, and was first added to the garden in 1890, comprises a very extensive collection of climbers. It is in the nature of things that taken as a whole this is not the prettiest part of the botanical garden; yet it is not only in a high degree interesting to the botanist but to the lover of beautiful plants also.

The *Gnetum*-species are botanically noteworthy, which are found with the beautifully blooming *Freycinetias* in section XV A.

In section XV B are principally *Dioscoreas*, „hui", with edible tubers, and the *Urticaceae*, amongst which *Ficus pumila* is worthy of observation on account of the great difference between its climbing and fruit-bearing branches, which have the semblance of belonging to two different species of plants.

Sections XV E, XV F, XV H and XVI A are especially rich in pretty-flowering shrubs. The *Bougainvilleas* are found here, quite the prettiest of which is *B. spectabilis*. A very familiar plant in the Indies is *Antigonon leptopus* (XV E 28, 29), which is here called „roode bruidstranen" (red bride's tears) in contrast to *Porana volubilis*, which is known as „witte bruidstranen". The introduction of the equally pretty white-blooming

variety of *Antigonon leptopus* has caused some difficulty to arise respecting the name. One has now viz. „red", „white red", and „white bride's tears", so that it is very desirable in order to prevent further complications that no red varieties of *Porana* should be discovered. In the same section we meet the brilliantly flowering *Congea velutina* (XV E 71), and the less beautiful *C. azurea* (XV E 70); furthermore choice *Petraeas* (XV E 72—75) with very rough leaves belonging to the order *Verbenaceae*, as does also the *Congea*. *Lantana camara*, a plant indigenous to America, and more valued in Europe than here, is a member of this order, which has acclimatized itself in Java and other far distant regions. We find the remaining *Verbenaceae* in section XV F, amongst others *Clerodendrons*, such as *C. Thomsonae* (XV F 14) with white calyx and red corolla known as „gebroken hartjes" (broken hearts), or „njonja makan sirih" (lady chewing betel), *Faradaya papuana* (XV F 9) with white flowers, *Holmskioldia* (XV F 27, 28) with a peculiarly formed calyx. Some pretty species of the *Thunbergia*-genus related to the *Acanthaceae* are represented, among the rest *Th. grandiflora* (XV F 44), *Th. laurifolia* (XV F 40), *Th. alata* (XV F 45) etc.

The principal attractions in section XV G are the pretty-flowering *Tecomas* and *Bignonias*, among others *T. jasminoides* (XV G 31) is very attractive. Here as well as in XVI A are found some of the *Convolvulaceae*, though most of them find habitat in XV H. The flowers are for the most part pretty although as a rule very short-lived. Especial mention is merited on account of their rich florescence by *Jacquemontia Martii* (XV H 42) and the „bride's-tears", *Porana volubilis* (XVI A 11) and *P. paniculata* (XVI A 12). The structure of the blossoms is much stronger in the partly epiphytic *Fagraeas* (XVI A), while the tissue of the gigantic flowers of *F. imperialis* is about 1 centimeter thick. The poisonous *Strychnos Tieute* (XVI A 49), which is provided with peculiar tentacular hooklets, belongs also to the climbing *Loganiaceae*.

We come out now to the new Canarian avenue, which divides the island almost from end to end. On the left side of the way, in section XVI E, we chiefly find the *Anonaceae*, whose generally strongly scented flowers as well as the fruit attract whole armies of ants. The *Dilleniaceae* found here are almost all remarkable for their harsh brittle rough leaves.

On the other side of the way, in XVI C, we notice in the first place a collection of *Hoyas* (called wax-flowers on account of their fleshy blooms), belonging to the order *Asclepiadaceae*.

The leaves of some *Dischidias* and *Hoyas* (XVI C) remind one of gigantic scale-bugs. The related *Dischidia Rafflesiana* (XVI C 32) is noticable on account of the variety of leaf-forms it displays; besides the ordinary flat leaves there are also much larger ones in form like strange beakers, which here and there are closely grouped together.

The remaining part of XVI C as well part of XVII A are occupied bij *Apocynaceae*, which order includes not only various ornamental plants as for instance the *Allamandas* with great yellow blossoms (XVI C), magnificent *Beaumontias* (XVII A), the sweet-scented *Aganosma caryophyllata* (XVII A 34) with pink flowers, but also caoutchouc-yielding plants such as *Landolphias* and *Willoughbeias*.

Between sections XVI C and XVII A a road leads to the new Economic garden on the other side, belonging to the Agricultural Department.

In section XVII F the orders *Connaraceae* and *Ampelidaceae* are specially prominent. The genus *Connarus* is distinguished by its frequently flesh-coloured panicles and red fruits. Especially elegant is *Rourea lucida* (XVII F 2), whose young leaf-shoots are of bright pink colour, while the small white flowers remind one of *Astilbe*. Among the extensive collection of wild grape-vines *Vitis adnata* (XVII F 72), and *V. discolor* (XVII F 73) attract attention by their pretty foliage, the former also bij its small bright red flowers which are grouped together in flat inflorescences.

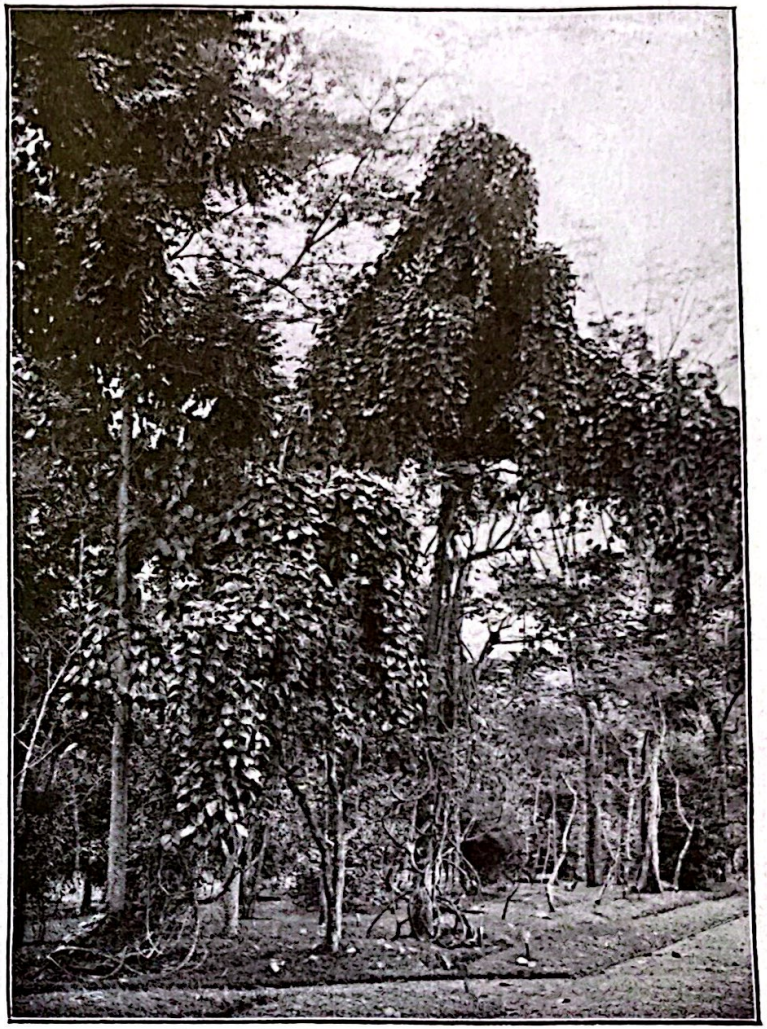
Continuing we find in section XVII E a part of the great order *Leguminosae*, particularly of the suborder *Mimosae*. The fine-leaved very thorny *Acacias* are important, as are also the *Entadas*, among which *E. scandens* produces fruits over a meter in length. In XVII E 86 we find *Camoensia maxima* with very large delicate white flowers.

We now turn between section XVII B, mostly planted with fragrant varieties of *Jasminum*, and section XVII C on the right. In section XVII C the climbing *Araliaceae* are close to the Canarian avenue, farther on are some species „honeysuckle", whilst we find among the growths belonging to the *Rubiaceae* the *Uncarias*, which climb bij their hooklets, among them *U. gambir* (XVII C 22), which yields „gambir", also the evil-smelling *Paederias* (XVII C 117 etc.); and *Mussaendas* (XVII C 52 *etc.*), which by their occasional white leaf-like sepals boldly attract attention.

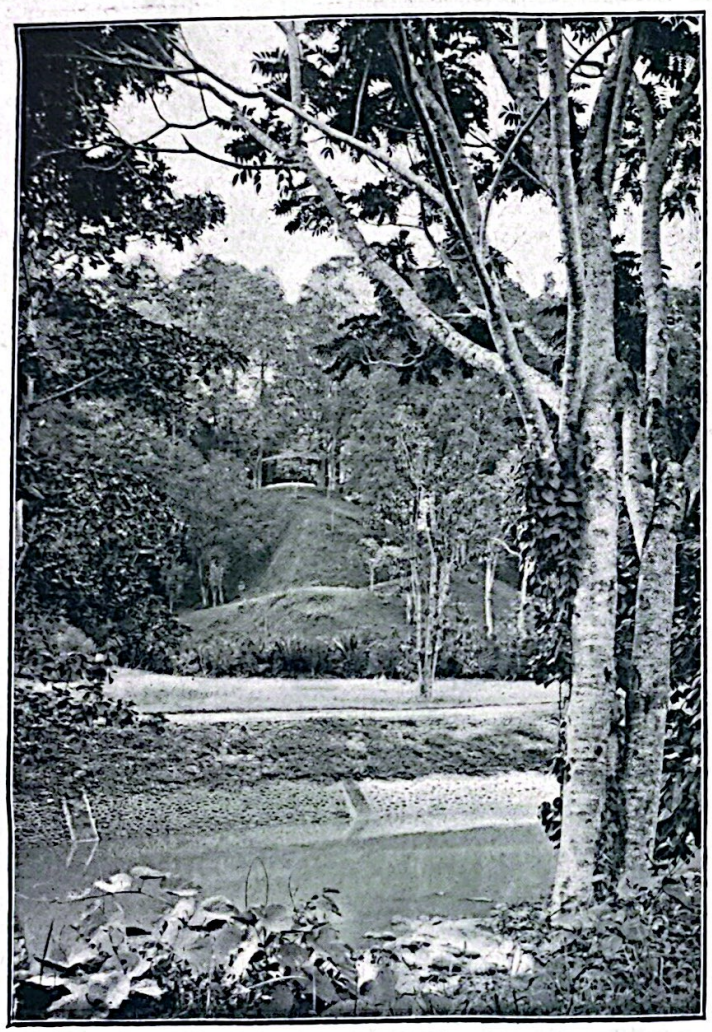
In section XVIII B there are some of the *Combretaceae* including *Combretum sundaicum* (XVIII B 41), which of late has obtained a certain reputation as a cure for the opium-habit, whilst the flowers of *Quisqualis indica* (XVIII B 59, 60), produced in much profusion, are at first pure white, but later become bloodred. *Dissochaeta cyanocarpa* (XVII B 3), order *Melastomaceae*, is distinguished bij tufts of beautiful violet-blue flowers and fruit.

At the end of section XVIII D, planted with *Leguminosae*, we have a pleasing view of the confluence of the two arms of the Tjiliwong, which also farther on forms the boundary of the garden. This is especially the case as the *Terminalia Catappa*, which are planted along the banks, with their leaves brilliant with reds and yellows before they fall, afford a most unusual spectacle for the Indies.

We follow the bank of the main branch of the Tjiliwong and so reach section XVII D, which is completely occupied bij more *Leguminosae*, belonging to the suborder *Caesalpinieae*. The *Bauhinias* are readily recognized by their typical, usually bilobate, leaves and often pretty flowers; *B. anguina* (XVII D 119) is especially remarkable, whose flattened stems bent up and down have given rise to the name „monkey-ladders".



PHYTOCRENE MACROPHYLLA.



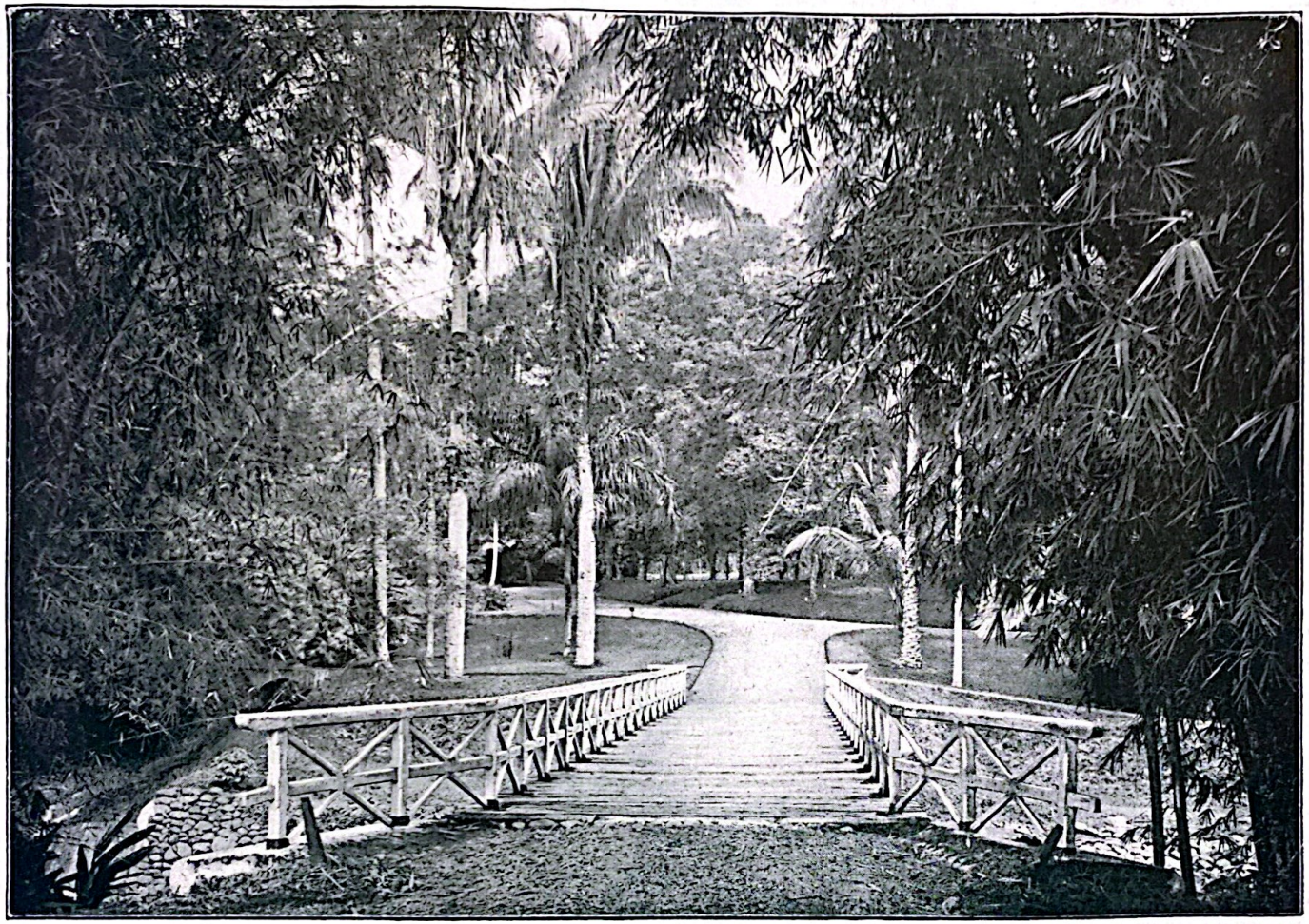
VIEW AT THE HIGHLY-PLACED SUMMERHOUSE.

Numerous well-armed *Caesalpinias* warn one to be wary in making their acquaintance; one of them, *C. Sappan* (XVII D 65), is not only used for fences but furnishes also a red dye-wood known as „kayu sampang".

On passing section XVII G, in which is found the great genus of *Salacia* with orange coloured fruits, and *Zizyphus Jujuba*, „bidara" (XVII C 13), with edible fruits, one has a fine view across the river at the highly-placed summer-house in section VII D.

In sections XVII I and XVI D we especially come across the *Menispermaceae*. One of these gelatinous drinks so loved bij the natives named „chinchao" is prepared from the leaves of *Cyclea peltata*, a plant belonging to this order.

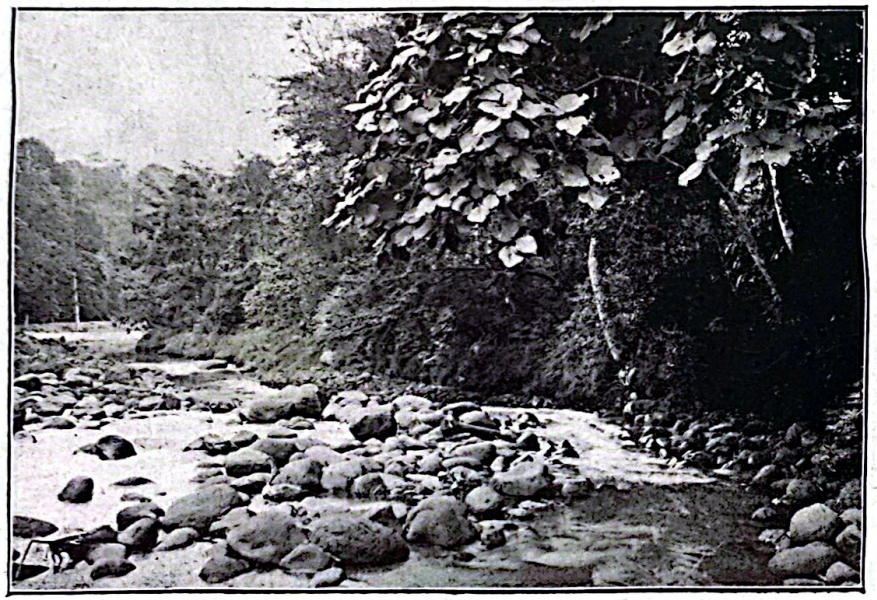
The walk on the island finishes here, and we recross the bridge to the old garden, certainly not before having once again admired the river-view to the north. The palm-group in V L makes a very beautiful display from the bridge, particularly the numerous *Metroxylons*, the „sagopalms", which grow in marshy places and possess small respiratory-roots, which stand out above the water like deepred sprouts. Besides their value as providing the sago, which forms the principal food of the inhabitants of the Moluccas, they have many other uses, viz. the leaves serve as thatch



BRIDGE

for roofs, and the leaf-stalks of the thornless variety for building material, fencing, etc., and as material for the manufacture of mats, etc. We also see there other useful palms, such as the „oil-palm", *Elaeis guineensis* (V L 2), and numerous varieties of the „coconut palm" *Cocos nucifera*, and on the small strip beside the river the wonderful „double coconut", or „Coco-de-mer", *Lodoicea Callipyge* (V L 79) and the „lontar" or *Borassus flabellifer* (V L 17), which can be recognized by its globular crown of leaves.

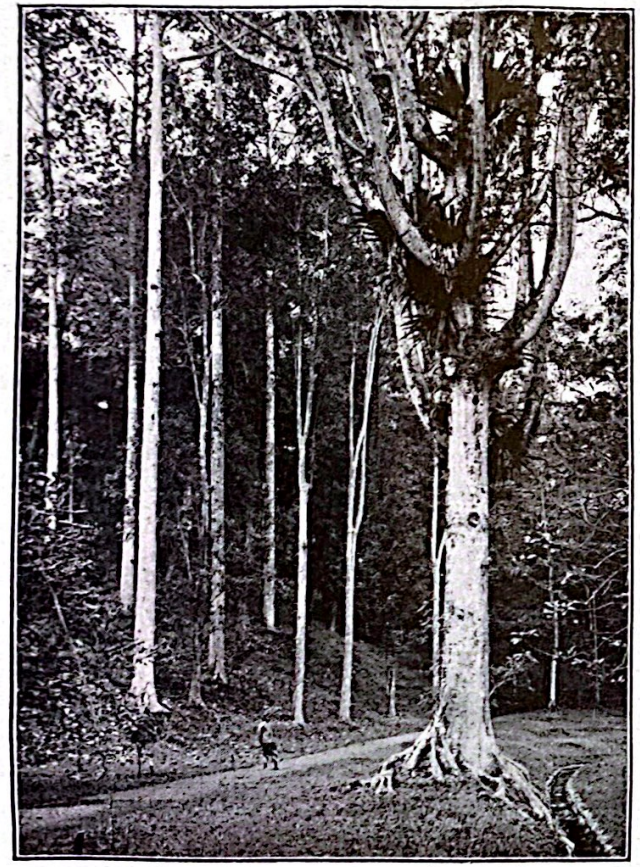
The order *Myrtaceae* is housed in the group of sections on the other side of the way viz. V C, V B and V A. Various kinds of fruit trees are met with in the very large genus *Eugenia*, for instance *E. malaccensis*, „jambu bol", (V A 89), which to a certain extent reminds one of apples, *E. aquaea*, „jambu ayer" (V B 63), and *E. Jambos*, called in Malay „jambu ayer mawar", (V B 56 and V C 39), *E. javanica*, „jambu samarang" (V B 50, V C 31), which are all more prettily coloured than well-tasting; the „clove", *E. caryophyllata* (V A 52) also belongs here, while *E. densiflora* excels bij the beauty of its flowers. *Psidium Guajava* (V A 74) produces the „jambu biji", while one of the varieties of *Melaleuca Leucadendron* is the source of „Cajeput-oil", which is principally imported from the island of Boeroe. The small order of *Lecythidaceae*, which was formerly regarded as belonging to the *Myrtaceae*, but has now been separated from it, contains some prettily-blooming *Barringtonias*; for example *B. speciosa* (V A 44), which grows commonly on the seashore, *B. racemosa* (V A 9) etc. *Memecylon floribundum* (V B 7 a.o.) of the order *Melastomaceae*, exposes itself to the attacks of ants, which so devour the leaves that it is generally difficult to find a sound leaf.



RIVER-VIEW.

As we now continue our walk along the main path, we soon see an unim-

posing little building, the Governor Generals swimming-bath. Behind it rise a few specimens of *Garuga pinnata* (VI B 89), which have peculiar candelabra-like branches. This section further contains numerous examples of tall species of *Canarium*, *Mangiferas*, which produce the delicious „manggas" (manggo), which do not however flourish particularly well in the damp climate of Buitenzorg. *M. foetida* (VI B 17) „bachang" and *M. caesia* (VI E 1, 3) „kemang", are exceptions which compensate for the poor quality of their fruit by their abundant tufts of brownish-red and lilac-coloured flowers. Nearly related to the *Mangifera* is the genus *Bouea*, of which *B. macrophylla* (VI B 29), the well-known „gandaria", bears very sour yellow plum-like fruits, which are prepared in various ways for the table.



GARUGA PINNATA.

We find the same orders, viz. *Burseraceae* and *Anacardiaceae*, in sections VI D, VI E, and VII E; the two great trees, the lower part of whose trunks form enormous buttresses and niches, in VI E 5, are the *Canarium decumanum*. In the stony part of VII E caused by the filling up of a part of the garden, which was formerly washed away by a heavy flood, we still see a number of *Cactaceae* and of *Euphorbias* which resemble them.

Continuing to walk along the path following the river-bank we soon find ourselves in the middle of a very rich collection of various kinds of fig-trees. These not only occupy a great part of sections VII G and VII H, but also of VII F, VIII C, and VIII D. This great genus does not include many useful members; the most important species of which is certainly *Ficus elastica*,

RIVER-VIEW

Quercus, which like the common European oak can form majestic trees and yield good timber, and *Altingia excelsa* (VIII B 91), „rasamala", which occurs in the mountain-regions of West-Java, attains gigantic proportions and produces timber of good quality.

We have now reached the narrow northerly part of the garden. At the beginning of section VIII G we see a number of trees, which have a strong superficial resemblance to the *Coniferae*, while their compound fruits also are not unlike fiyrcones. The are the *Casuarinas*, „chamara", among which are *C. equisetifolia* (VIII G 3, 9, 10), which are universally met with on the Indian coast-lines, and the smaller *C. sumatrana* (VIII G 7), which grows to be a choice tree.

A little farther on we observe a number of species of „cannella", (Cinnamons), of wich *Cinnamomum zeylanicum* (VIII G 51) is quite the best known; many among them with the young leaves of a bright red colour. *C. Camphora*, the „Chinese camphor" (VIII G 44), grows here although badly for the climate is too warm for the plant. The soil of section IX D is very stony, in consequence of which the *Lauraceae*, as they are forest-plants, for the most part could not get their due nourishment in

their former quarters. Through a small extension of the botanical garden having been made by including a piece of ground situated on the hill-side behind section IX C it has become possible to take them over there. Exception is certainly to be made in favour of *Eusideroxylon Zwageri*, a species of iron-wood of which many specimens grow up sturdily together here. Among the other plants which find place in this section there are some varieties of *Phalerias* so conspicuously beautiful that one's glance is revitted on them, quite as much for their snow-white blossoms, as when later on these are succeeded bij shining red fruit.

In IX B is found a collection of *Codiaeum variegatum*, generally better known as *Crotons*, „puring". Many years ago absurdly high prices were given by the Chinese for these plants, which indeed could not long be maintained on account of their easy cultivation.

The remainder of the arborescent *Euphorbiaceae* are to be found in sections IX A, VIII H, IX C, VIII F and VIII E. Among the most noteworthy species are *Aleurites moluccana* (IX A 49), „kamiri", whose seeds are eaten at rice-tafel, and which also produce an oil, *Hura crepitans* (IX C 68) from Surinam, which has a very tart sap that was formerly considered to be a remedy against lepra. *Acalyphas* with variegated leaves (IX C 47, 48, 50, 59, 60, 61, 62), which are much used as decorative plants, the Brazilian *Manihot Glaziovii* (IX A 15), whose milky sap when coagulated is known as „Ceara-rubber", while the fruit

FICUS WITH VERY LONG BUTTRESSES.

FICUS AND DIPTEROCARPACEAE

HIGHLY-PLACED SUMMERHOUSE.

of *Phyllanthus distichus*, „chermei" (IX C 116), that of *Baccaurea racemosa*, „menteng" (VIII F 33, VIII H 20) and of *B. dulcis* (VIII F 1, 3, 53) are edible.

We now strike into the picturesque foot-path leading us almost imperceptibly upwards into sections VIII C and VIII B. We can here admire the beautiful trees belonging to the *Ficus*-order (*Moraceae*), and the family of the *Dipterocarpaceae*. At the corner of VIII D *Ficus cordifolia* (VIII D 12), especially attracts attention with its lofty shining green trunk, which reminds one of that of a herbaceous plant. Close by is a very large specimen of *Shorea Maranti* (VIII D 11).

The *Dipterocarpaceae* are generally stately trees, which flourish exceptionally well on the slope appointed for them. We notice among others *Shorea stenoptera* (VIII D 56), which yields „tengkawang-fat" as do also some other kinds, for instance *Isoptera borneensis* (VII C 7), which is found a little farther on. *Dryobalanops aromatica* (VIII D 37 and VI C 67) is also a very pretty tree, and is the source of „Sumatra" or „Baros-camphor".

After having further seen *Shorea Pinanga* in the small section VII C, with its limp drooping branches, we rest for a moment in the summer-house situated on an eminence, from which surrounded by trees we have a beautiful view across the Tjiliwong flowing far below, with the Gede-range in the back-ground.

VIEW FROM THE HIGHLY-PLACED SUMMERHOUSE.

Continuing our walk along the path between sections VII B and VII D, which now approaches the fence of the deer-park, enabling us to take a glimpse inside, we see on the slope a number of *Lagerstroemias*, „bungur", which during florescence will not fail to attract attention by their wealth of ruddy-violet blossoms of varied tints, and farther on by either side of the path a number of pyramidal trees, several specimens of which with their strongly weird branches form a kind of witches' broom. These are the *Garcinias*, among them *G. Hanburyi* (VII B 2), the „guttegom", and a little farther on *G. Mangostana* (VI A 6), which yields one of the most delicious Indian fruits, the „mangosteen".

In the same section there occurs one more species of „iron-wood" viz. *Mesua ferrea* (VI A 14), a pretty little tree with fragrant flowers and beautiful pink young leaf-shoots.

The path opens out now on the broad way between IV I and VI C. In section IV I bordering on the wing of the palace, we chiefly meet with the *Sterculiaceae* and *Tiliaceae*. Several of the *Sterculias*, among others *S. laevis* (IV I 125 etc.) bear glistening vermillion coloured fruits, which on bursting open display pretty black seeds. Here also belong the „cocoa", *Theobroma Cacao* (IV I 25 etc.), and the African „kola nut", *Cola acuminata* (IV I 147).

Having descended bij the broad way we come upon an extensive collection of *Anonaceae*, *Dilleniaceae*, and *Rosaceae* in sections IV H and IV G. The *Anonaceae* have peculiarly shaped flowers and often pretty fruits. The *Stelechocarpus Burahol*, „kepel" (IV G 10), pyramidal in form is remarkable for its edible though not very palatable fruit, which occurs in great quantity on its trunk. The *Dilleniaceae* are fine trees often with reddish-brown trunks, strongly veined leaves, large yellow or white flowers, peculiar fruits, which may commonly be found on the ground. Nearly all the *Myristicas* have fruits which correspond with the comnon „nutmeg" or „pala", *M. fragrans* (IV H 55,70), in form and colour although they lack its fragrance. *M. Horsfieldii* (IV G 75) is well known for its sweet-smelling yellow male blossoms.

We turn off now to the right by one of the parallel paths that run between IV F and V D or between V D and V E.

In the sections V D and V E beautifully flowering shrubs have been planted, especially *Ixoras*, *Pavettas*, *Gardenias*, among others the *G. florida* (IV E 9) well known in Europe with its deliciously

GROUP OF TREES IN IV F.

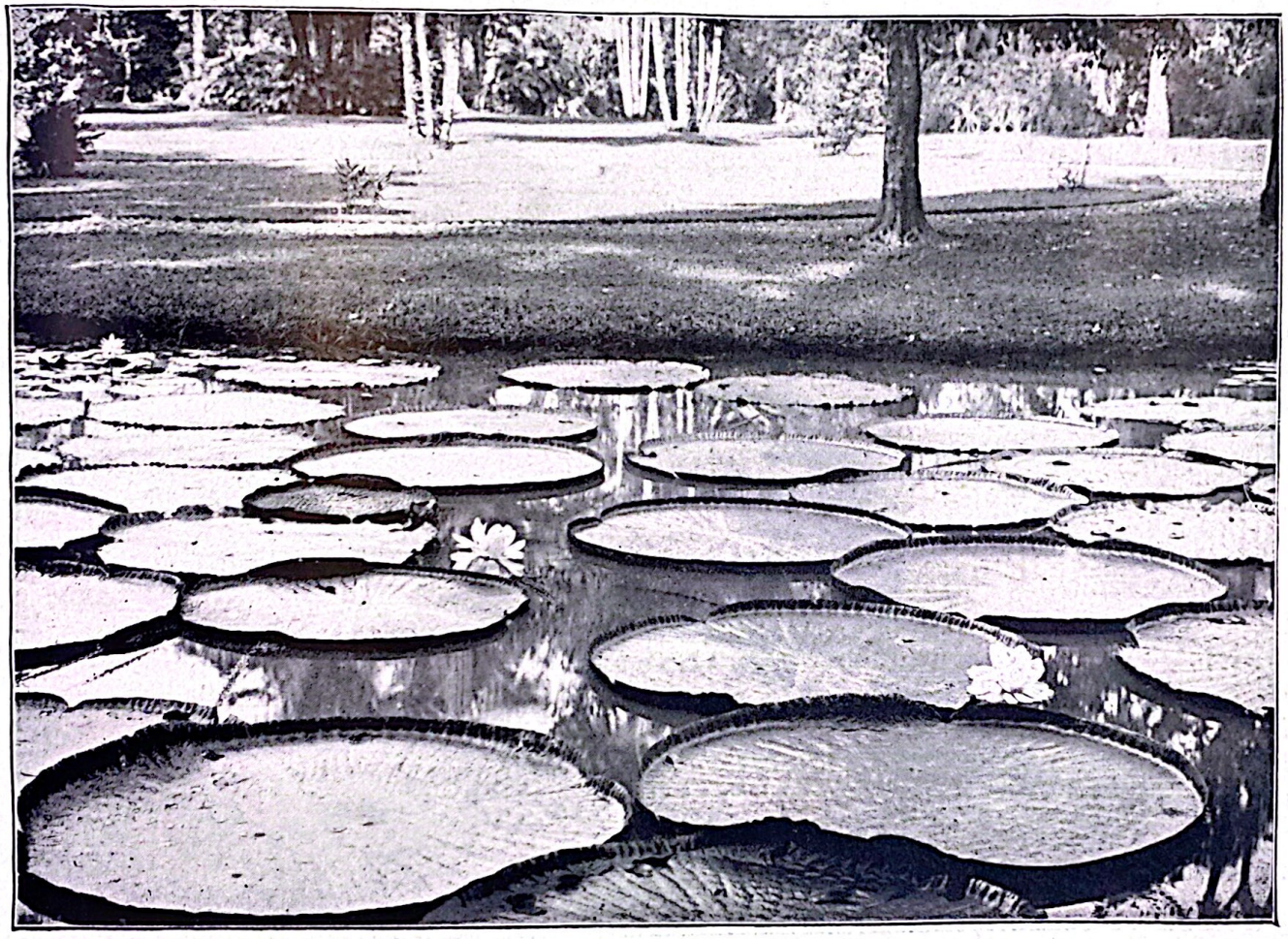
perfumed white blossoms, and known here as „kacha piring", while *Randia maculata* (IV E 7, V D 45) with its lily-like blossoms is also beautiful.

In IV F we find the order *Magnoliaceae* almost all the members of which surpass through their very fragrant flowers, while many of them in addition yield excellent timber.

The flowers of *Michelia Champaca*, „champaka" (IV F 43,45), and *M. longifolia*, „champaka putih" (IV F 46), are regularly for sale in the markets. The shrublike *Talauma mutabilis* (IV F 20) and *T. pumila* are distinguished bij their tulip-like flowers.

The order *Bixaceae* though quite inferior in attractiveness is however very important from a botanical point of view; these plants as a rule contain prussic acid which even in *Pangium edule*, „pichung" (IV F 52), is present in large quantities. Although the seeds of this plant are very poisonous when fresh, they can be eaten with impunity after having been boiled. The seeds of *Bixa orellana*, „galinggem" or „kasumba" (IV F 86,88), produce a red dye-stuff. *Flacourtia Rukam*, „rukam" (IV F 108,115), and *F. inermis*, „lobi lobi" (IV F 37,41, 68,73), are very suitable for making jelly.

When we turn into the path between IV F



VICTORIA REGIA.

KIGELIA PINNATA.

and IV E we soon find ourselves et the meeting point of six ways, where sections IV A, IV B, IV D, IV G, IV F and IV E meet. Section IV D as well as IV C by the pond contain a number of kinds of the *Diospyros* (order *Ebenaceae*) of which some, amongst others *D. Ebenum* (IV D 42) supplies „ebony". Also *Styrax Benzoin* (order *Styraceae*), „minjan" (IV D 62), from which „benzoin" is derived.

The order *Sapotaceae* contains much milk-sap, which in some species when coagulated is well known as „gutta percha". Particularly the product of *Palaquium Gutta* (IV D 75), *P. borneense* (IV D 1) and some others is of excellent quality. We find the „sau manila" or *Achras Sapota*, one of the best known Indian fruit trees, originally from the West Indies, in section IV B.

Along the path between IV A and IV B we now reach the bank of the large pond, which is picturesque wherever viewed from. On the densely grown little island the bright red leaf-sheaths of a few splendid specimens af the *Cyrtostachys rendah*, generally known here as the „red pinang" (red areca), contrast vividly with the green. The bridge which here crosses the arm of the pond leads to the peninsula belonging to the grounds of the Governor General, which are not open te the public. In this arm of the pond the *Victoria Regia* thrives luxuriantly and blossoms continuously, but the large leaves are not generally so perfect as in European hothouses, where they are protected against all injuries.

On the other side there is a remarkable tree, *Kigelia pinnata*, whose large fruit hanging by long stalks certainly earn it its name of „worstenboom" (sausage-tree). The eastern bank of the pond is chiefly planted with varieties of *Nephelium*, „rambutan" and „kapulasan". When these trees are heavily laden with red and yellow fruits they are very beautiful especially when seen from the opposite bank.

On paying a visit to the somewhat low-lying round pond with the fountain we follow the path between sections III J and III I, planted with *Sapindaceae* and notice some *Otophoras* in III J, with pretty coloured young leaves; this is particularly the case with *O. spectabilis* (III J 69). The little cupola by the pond is under a large and old specimen of *Ficus elastica* (III J 1).

Traversing sections III J and III K we now once more ascend to and follow on the bank of the pond, where in section XI D we pass by a few specimens of *Swietenia Mahagoni* (XI D 11) from which „mahagony-wood" is obtained. In the Canarian avenue our attention besides being drawn to

ROUND POND WITH FOUNTAIN.

LARGE POND.

ALONG THE LARGE POND.

GRAMMATOPHYLLUM SCRIPTUM.

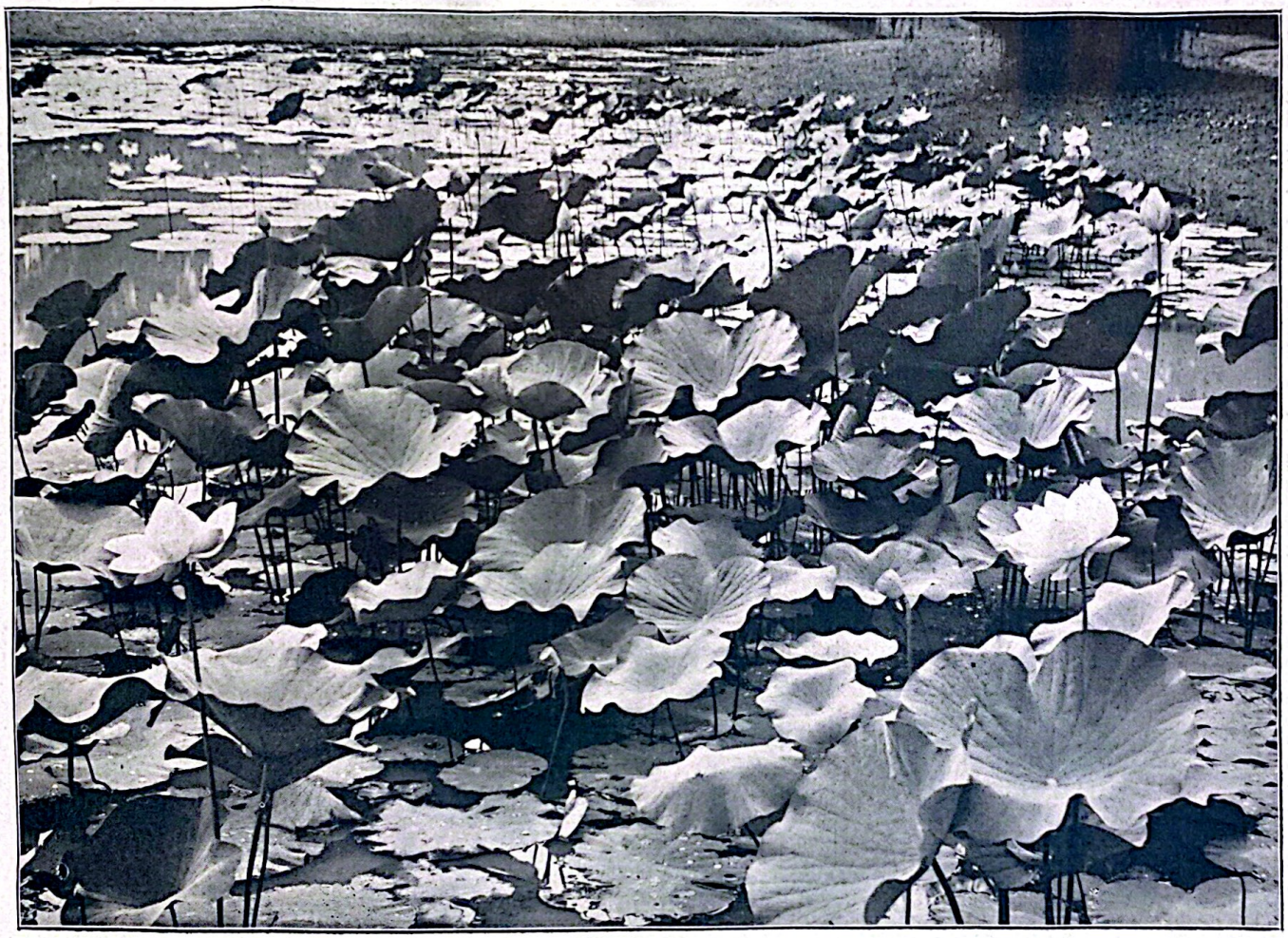
the climbing plants previously mentioned is also attracted bij the large specimens of *Grammatophyllum speciosum*, the „giant orchid", and bij the smaller *G. scriptum*.

On making a short detour from the Canarian avenue to the part situated between this avenue and the Tjibalok (a branch of the Tjiliwong dividing the western part of the garden), one finds the orders *Solanaceae*, *Verbenaceae*, *Bignoniaceae* and in XIII J the *Araliaceae* represented there.

The finely blooming *Durantas* and *Callicarpas* in XI G bearing richly coloured fruits attract our attention most. In XI H there are a few specimens of *Kigelia pinnata*, the „sausage-tree" (XI H 46) and of the „candle-tree", *Parmentiera cerifera* (XI H 4), whose wax-yellow fruits do indeed remind one of candles. In the same section are seen the African *Spathodea campanulata* (XI H 29) recognizable by its large brilliant red flowers, and the Brazilian *Sparattosperma lithontripticum* (XI H 26) which after having shed its leaves in August adorns itself with a wealth of large canary-coloured flowers. The „jati" or „teak tree", *Tectona grandis*, which produces the best timber in the Indies is found on XI I 25 and XI J 6.

In the arm where the pond extends on this side, one finds not only *Victoria Regia*, but also the white-flowering variety of *Nelumbo nucifera*, the „lotos" of

VICTORIA REGIA AND RAVENALA MADAGASCARIENSIS.



NELUMBO NUCIFERA.

the Egyptians, the seeds of which are edible. A grove consisting for the most part af bamboos is found on the left of the Canarian avenue, called on that account „the bamboogrove"; formerly persons of high position found a last resting place here.

Having returned to the Canarian avenue we come into the avenue to the left planted with „royal palms", *Oreodoxa regia*. From here we have an excellent view of the „cannon-ball-tree", *Couroupita* guianensis (XIV C) a, standing at some distance of the palace coach-house; it is remarkable for the great number of its blossoms which spring from the trunk, the large flowers being followed by bullet-shaped fruits.

PALACE OF THE GOVERNOR GENERAL.

The lawns on both sides of the Oreodoxa avenue are for the most part surrounded by bamboos, and one can scarcely conceive a more beautiful setting. The bamboo collection is very extensive and is principally planted along the banks of the Tjibalok previously spoken of. On crossing the bridge over this stream, we find the second of the great

entrances of the garden. At this entrance one finds a couple of examples of *Dendrocalamus giganteus*, one specimen of which is still young, but the other is indeed magnificently developed. A bamboo avenue on the right leads to the small exit opposite the Herbarium, the Library and the Technical museum. Turning to the left we still find ourselves with the bamboos, amongst them *Gigantochloa Apus*, „bamboo tali"

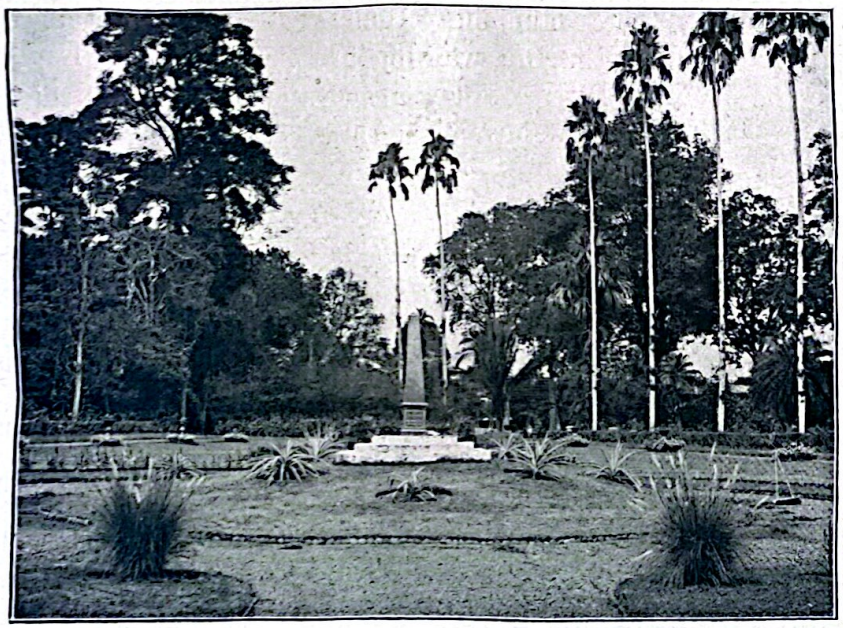
The bamboo-grove.

Oreodoxa avenue.

Bamboo.

(XIV B 9, XIV C 17,19,24), *G. aspera* „bamboo bitung" (XII C 4, XIV B 12) and *G. verticillata* „bamboo andong" (XIV B 4).

The supplementary division of the palm collection begins at XIII A past the Protestant church and stretches southwards along the Groote Weg (High road). The way by sections XIII A and XII E is planted with *Livistona rotundifolia*, whence it is known bij the name of the Livistonian avenue; time indeed has begun to make many gaps in it, so that replanting must be considered. Some of the trunks are completely overgrown with *Pothos aurea*, whose leaves are strongly coloured here in the sunshine. Within the hedge of freely flowering *Barleria cristata* lies the rose-garden, its grounds laid out in French style, with a broad bed of roses along each side. A simple memorial pillar stands in the centre, dedicated to the memory of the curator TEYSMANN, to whom the Botanical Garden owes so much.

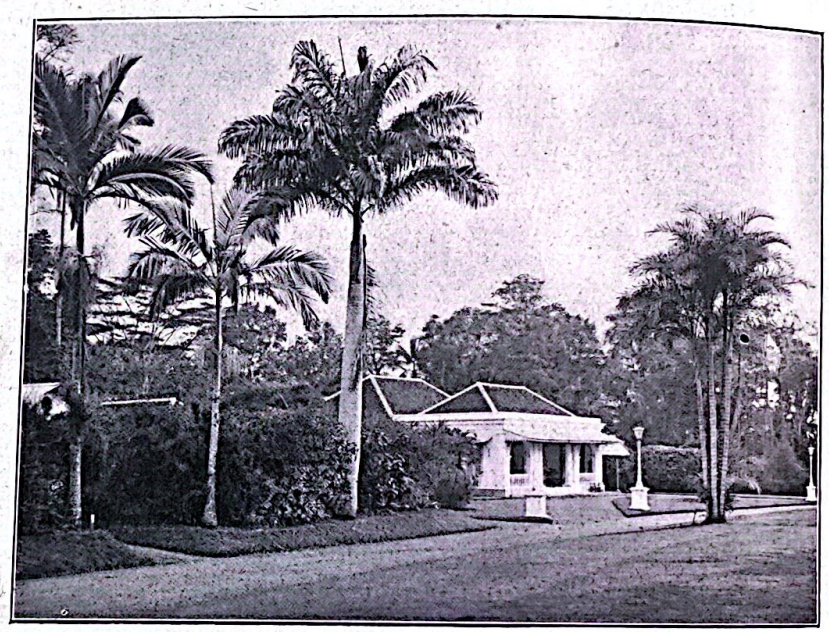


IN THE ROSE-GARDEN.

Past the rose-garden we are again quite in the midst of the palms. Sections XII C, XII D and X E, except on the road, where there are fine examples of *Livistona Jenkinsiana* (XII C 21, 8, XII E 44), *Oreodoxa acuminata* (XII C 16, 6, 2, XII D 23), *Scheelea insignis* (XII C 23), include climbing palms or „rattan". These plants can easily work their way high up in the trees through

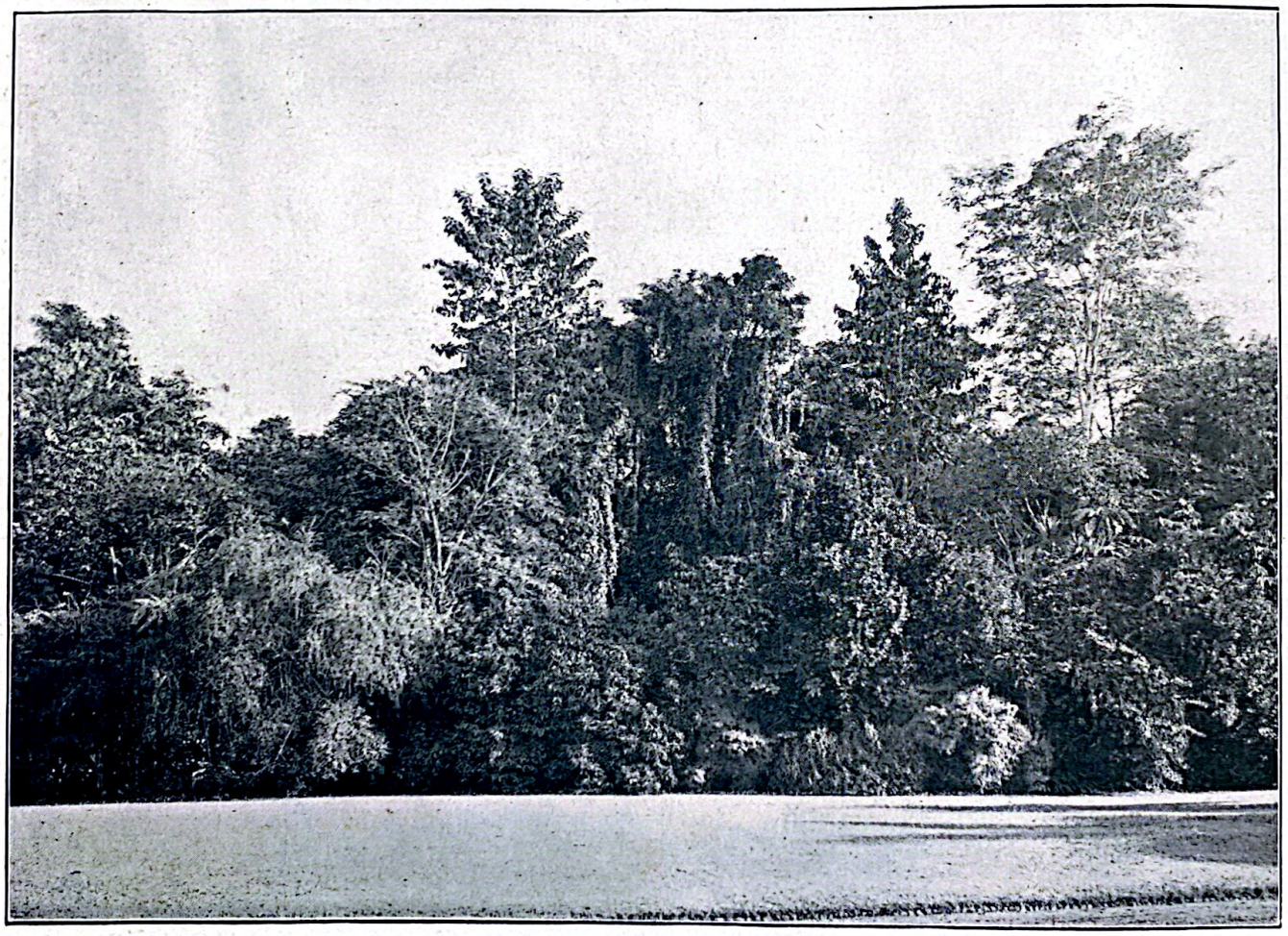
PALMS.

the strong tendrils found on the tips of the leaves or in their axils bristling with sharp spines directed backwards; in some varieties these climbing organs are several meters in length. On walking in this section it is necessary to keep a good look out, for a near acquaintance with these spines is not advisable.



THE DIRECTOR'S HOUSE.

RATTAN.



WOODLAND-GARDEN.

There are some *Pisonias* in section X G, next the director's house, among them the well known *P. alba* „kol banda" (X G 6), for which indeed the situation is apparently not very favourable.

The view from the director's house on to sections XII B and XI B is very pretty though simple. One could imagine oneself on the outskirts of a wood. Both sections are planned for shade-loving plants and together form the so-called woodland-garden. It is quite worth while to bestow a glance on it. In plots XI B XIX and XVIII there is a number of species of *Laportea*, „pulus", in Javanese woods not unfrequently tree-like stinging-nettles, whose action is somewhat more powerful than that of the European stinging-nettles (*Urticas*).

AROIDS IN THE WOODLAND-GARDEN

Some species of climbing *Piper* in XI B XVI exhibit very great difference between the creeping or climbing and the flowering twigs, not only in form but also in colour. In other plants also there not unfrequently appears a great difference of leaf formation, especially between the young and the old specimens. *Begonias* and *Acanthaceae* are well represented in XI B XIV and XIII.

The monocotyledonous plants are however the prettiest in the woodland-garden. In XI B XII one especially notices a number of small palms, the *Commelinaceae*, among them *Dichorisandra*, *Tradescantia*, *Zebrina*, and a number of bulbous plants belonging to the *Amaryllidaceae*, among others *Eucharis*, *Crinum*, *Griffi-*

nia etc. *Dracaenas* and *Cordylines* are found in the bordering plot XI, where one may also admire the choice but delicate blossom of some *Maricas*. The collection of *Araceae* is very extensive. The genera chiefly represented here are *Homalomena* with aromatic leaves, *Schismatoglottis*, both in XI B X, where grow also some *Aspidistras*, *Colocasia*, *Aglaonema*, *Gonatopus Boivini*, which is especially remarkable for the fact that so soon as the compound leaves have matured some of the leaflets are thrown off and grow up into new plants; all these are in XI B XI. The great genus *Anthurium* occurs in XI B IX and VIII, which latter plot also finds a home for *Dieffenbachia*, *Amorphophallus*, *Zamioculcas*, *Xanthosoma* and *Caladium*.

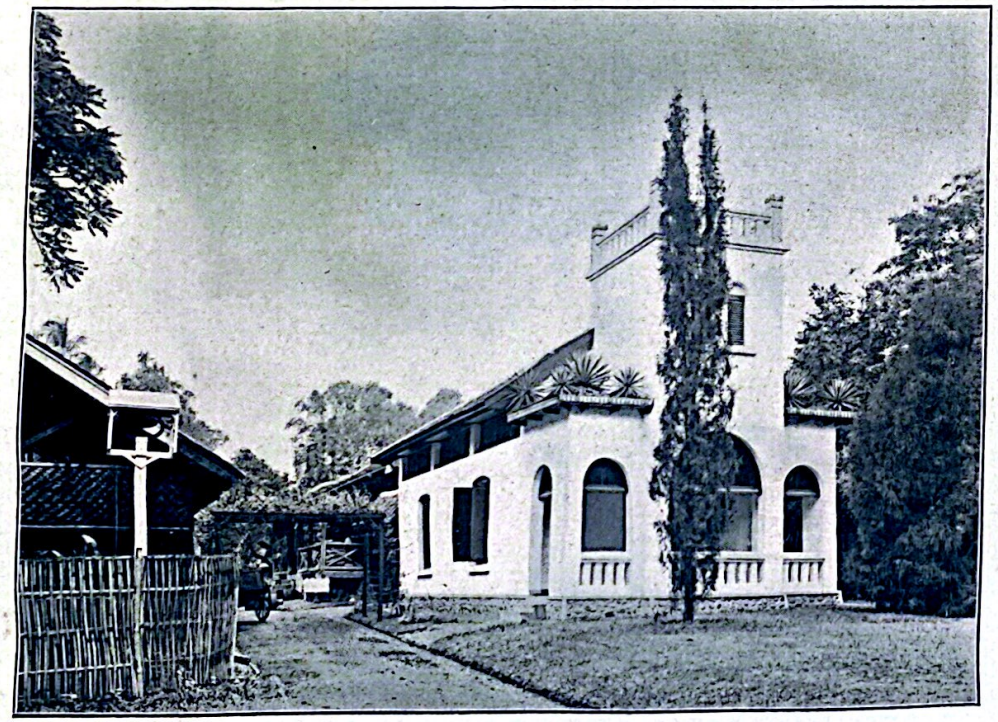
MARANTA'S IN THE WOODLAND-GARDEN.

Sections XI B VI—I are appropriated to the *Scitamineae*, to which belong the *Marantas*, *Phryniums* and *Calatheas*, with their many-coloured leaves, also the genera *Lowia* and *Kaempferia*, whose blossoms closely resemble the orchids (XI B VI). In plot V there are finely blooming *Hedychiums*, „gandasoli", and the useful *Zingibers*, „ginger" or „jahe". One sees the spiral-shaped stems of the *Costus* in XI B VI and V, in the last plot also is its relative the brilliantly red-flowering *Tapeinochilus pungens*.

In the last two plots one principally finds a number of equally prettily flowering *Alpinias*, whose fruits are sometimes eaten.

THE CONSERVATORIES

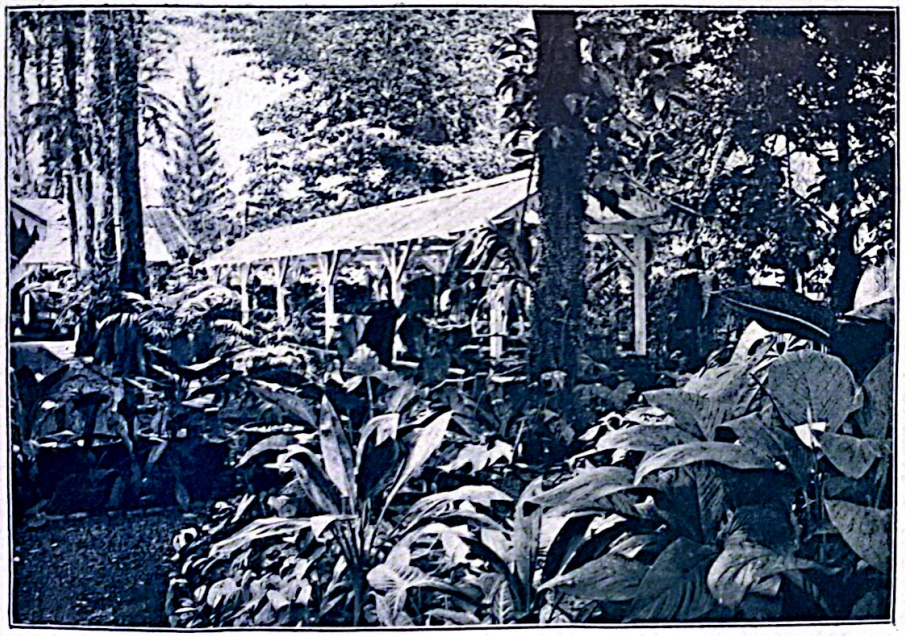
Opposite the woodland-garden there are two conservatories made of lath; the first and smallest is especially destined for orchids; the other contains a collection of foliage-plants such as *Anthuriums*, *Marantas*, *Dieffenbachias* etc.



CURATOR'S OFFICE.

Both of these are accessible to the public on application to one of the workpeople present. The curator's office is situated a little farther on the road in the immediate neighbourhood of the nurseries which may be viewed on request. The plants for bedding-out are reared here as well as those plants intended for sending away, but which are not yet fit for transport, and the newly arrived plants also stay here at first.

Moreover one finds here numerous species which may be sought for in vain in other parts of the garden. An extensive collection of *Adiantums* is



In the nurseries.

housed here, the cultivation of which finds a preference in Indian homes under the name of „chevelures" (maidenhair), also a number of *Begonias*, *Phalaenopsis*, and the remarkable *Aponogeton fenestrale*, a waterplant whose leaves consist only of the nerves, *Cactaceae* etc.

Leaving the nurseries we are soon back in the Canarian avenue and see before us on the right the main entrance through which we came in.

BIG FIG-TREE.

BOTANICAL GARDENS

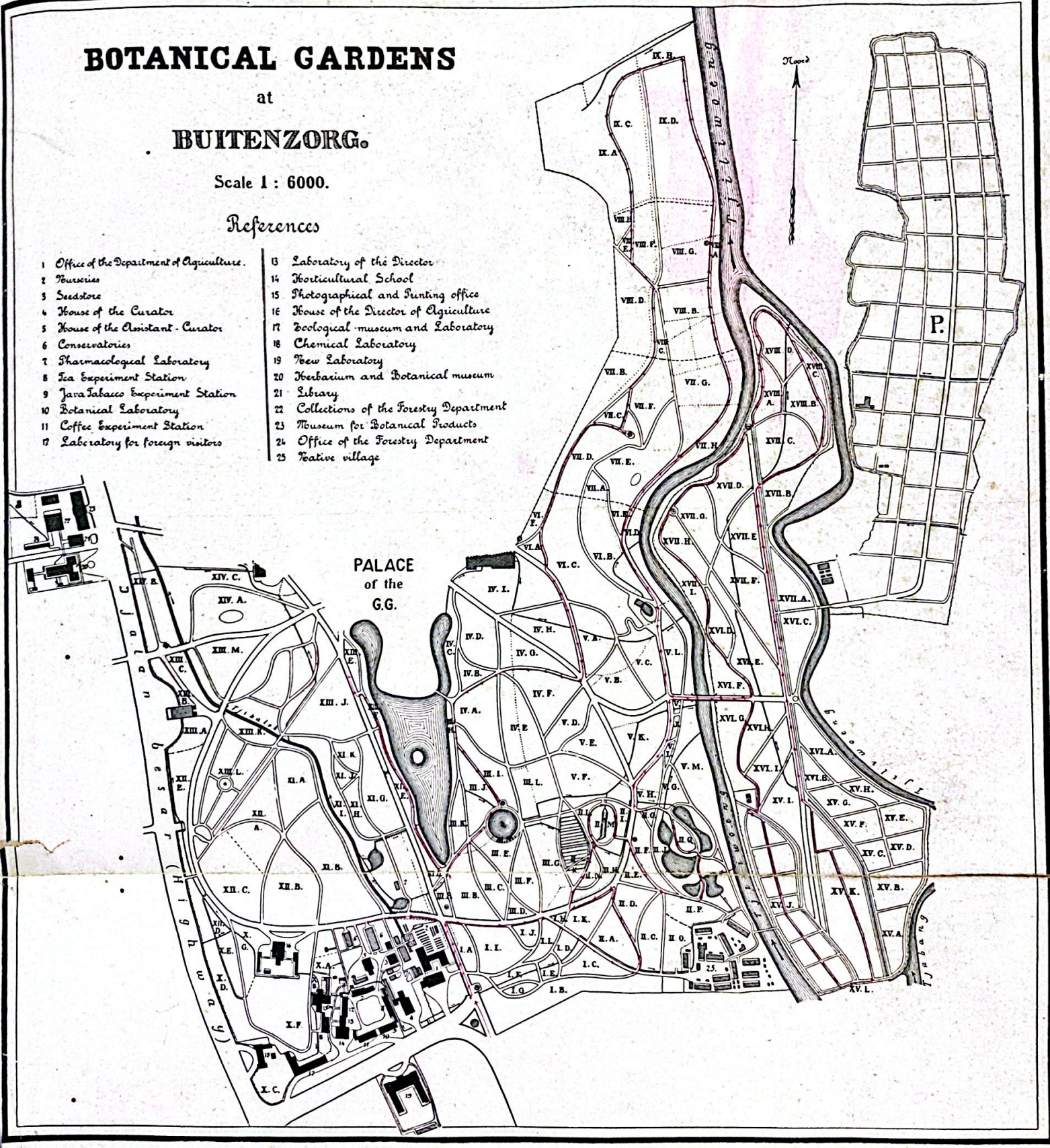
at

BUITENZORG.

Scale 1 : 6000.

References

1 Office of the Department of Agriculture.
2 Nurseries
3 Seedstore
4 House of the Curator
5 House of the Assistant - Curator
6 Conservatories
7 Pharmacological Laboratory
8 Tea Experiment Station
9 Java Tabacco Experiment Station
10 Botanical Laboratory
11 Coffee Experiment Station
12 Laboratory for foreign visitors
13 Laboratory of the Director
14 Horticultural School
15 Photographical and Printing office
16 House of the Director of Agriculture
17 Zoological museum and Laboratory
18 Chemical Laboratory
19 New Laboratory
20 Herbarium and Botanical museum
21 Library
22 Collections of the Forestry Department
23 Museum for Botanical Products
24 Office of the Forestry Department
25 Native village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